

ARMY LOGISTICIAN

JULY-AUGUST 2004

Iraqi Freedom Lessons Learned



Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE AUG 2004		2. REPORT TYPE		3. DATES COVERED 00-00-2004 to 00-00-2004	
4. TITLE AND SUBTITLE Army Logistician. Volume 36, Issue 4. July-August 2004				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Army Logistics Management College, 2401 Quarters Road, Fort Lee, VA, 23801-1705				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 59	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

PB 700-04-4
VOLUME 36, ISSUE 4
JULY-AUGUST 2004

- 1 News
- 2 Log Notes
- 3 **Analyzing the Lessons of OIF Distribution**
—Suzi Thurmond
- 7 **Planning a CSS Live-Fire Exercise in Korea**
—Major Leon G. Plummer and Captain Eric A. McCoy
- 10 **DLA Creates J-4**—Colonel William H. Taylor III
and Chief Warrant Officer (W-4) Eddie Murphy
- 12 **Frontline Support of the First SBCT at War**
—Lieutenant Colonel Dennis M. Thompson
- 18 **Transforming Army Oil Analysis**
—Captain Daniel A. Jensen
- 20 **Moving the Army—Texas Style**—Staff Feature
- 23 **The Aviation Support Battalion—Workhorse of Army Aviation**—Major Timothy J. Whalen and
Lieutenant Colonel Richard T. Knapp
- 28 **A Corps Support Battalion's Experience in Operation Iraqi Freedom**—Lieutenant Colonel Andrew W. Bowes and
Major Kimberly J. Daub
- 34 **Supporting the Fight: The FSB**
—Major Steven M. Leonard
- 38 **Integrating Units in the BSA**
—Colonel David W. Vegollo and Major John C. Bivona, Jr.
- 40 **Commentary: Eliminating the Iron Mountain**
—Laurel K. Myers, Ph.D.
- 44 **Commentary: Thinking Joint—Integrating Army Logistics**
—Major Lisa A. Zanglin
- 46 **The Theater Support Command at War**
—Major General George William Wells, Jr., USAR
- 49 **Commentary: Multifunctional Medium Heavy Transportation Company**—First Lieutenant Joseph P. Corrigan, Jr.
- 50 **ALMC: 50 Years of Excellence**—Staff Feature

BOARD OF DIRECTORS

Chairman

Major General Terry E. Juskowiak
Commander
Army Combined Arms Support Command

Members

The Honorable Claude M. Bolton, Jr.
Assistant Secretary of the Army
Acquisition, Logistics, and Technology

Lieutenant General C. V. Christianson
Deputy Chief of Staff, G-4
Department of the Army

General Paul J. Kern
Commander
Army Materiel Command

ARMY LOGISTICS MANAGEMENT COLLEGE

Colonel Robert J. McNeil
Commandant

Barbara G. Mroczkowski
Assistant Commandant

STAFF

Janice W. Heretick, Editor
Robert D. Paulus, Associate Editor
Janice L. Simmons, Assistant Editor
April K. Morgan, Assistant Editor
Louanne E. Birkner, Administrative Assistant

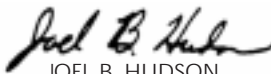
Graphic arts and layout by
RCW Communication Design Inc.

This medium is approved for the official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:


JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0409701



Cover: A year after Iraqi Freedom began, Army logisticians are analyzing the lessons of the operation. The article beginning on page 3 summarizes the conclusions reached at an Iraqi Freedom distribution rock drill conducted at Fort Lee, Virginia. Meanwhile, the war continues, and reports on the conflict can be found on pages 12, 20, 23, 28, 34, and 46. On the cover, soldiers of the 1st Infantry Division (Mechanized) work on an AH-64 Apache helicopter at Forward Operating Base Speicher, Iraq.

World Wide Web address:
<http://www.almc.army.mil/alog>

ALOG NEWS

G-4 SAYS ARMY MUST CHANGE

“The Army must change now. The old designs won’t work on the new battlefield.” Lieutenant General C. V. Christianson, Deputy Chief of Staff, G-4, told an audience at a recent Association of the U.S. Army (AUSA) Logistics Symposium that the changes he envisions are simple—

- Develop a logistics information network to connect logisticians. Sustainers must see requirements, especially repair parts, in real time on a shared data network. They must respond to those requirements with speed and precision.

- Develop a responsive distribution system. Distribution must begin on day 1 of a deployment and continue on through the last tactical mile. The system should be trusted by the customer and managed by a single owner.

- Develop a rapid force reception capability that will allow a quick and seamless transition to the theater and immediately provide sustainment to the combat force. The Army needs to develop operational concepts, but not specific operation plans, because it will face an unknown situation and force structure in an unexpected location.

- Develop an integrated supply chain with a single proponent to coordinate efforts to support joint, interagency, and multinational forces. The system should provide everything the warfighter needs, from factory to foxhole.

General Christianson said that today’s battlefield is dispersed and consists of islands of operations that are connected by a fragile spider web of support. The force is no longer task organized and must be flexible to respond to rapidly changing environments.

The G-4 added, “The battlefield enemy has changed. He has different values. He places no value on life. He prefers to operate in remote areas and is hard to target. He is not trying to occupy land; he wants our mental space. He opposes freedom and tolerance.”

General Christianson praised the efforts of the logisticians who managed under extremely difficult conditions in Operation Iraqi Freedom. He stated that they were not prepared to operate in a rapidly moving environment with the equipment and procedures they had; but because they were well trained and had a sense of purpose, many of their individual efforts were brilliant and successful.

The AUSA Logistics Symposium took place in Richmond, Virginia, on 6 through 8 April.

(ALOG NEWS continued on page 52)

LOGISTICS TRANSFORMATION POSTER SERIES DEBUTS

Army Logistician is pleased to include in this issue the first of five posters created by the Office of the Army Deputy Chief of Staff, G-4, on Army Logistics Transformation. This issue’s poster introduces the series. The other posters portray the four focus areas that govern the transformation: Connect Logisticians; Modernize Theater Distribution; Improve Force Reception; and Integrate the Supply Chain. The first poster is at page 23. Readers can download the other posters from the Web at www.hqda.army.mil/logweb, or they can order copies by contacting tellarmyg4@hqda.army.mil.



LOG NOTES

Using TRICONS

I would like to comment on the story in your March–April 2004 issue titled “Improving Equipment Management With Triple Containers.” First Lieutenant Nathan D. Williams wrote an excellent story on the use of the TRICON in the 110th Quartermaster Company.

For nearly 12 years, until 1995, my company, Willbros Operating Services, Inc., was the engineer and systems integrator of the Inland Petroleum Distribution System (IPDS). After Desert Storm, we sent all of our operational project stocks to Sierra Army Depot, California. Working with the Project Manager for Petroleum and Water Logistics, we reconfigured the entire system into more manageable packages. The goal was to create a truly intermodal system in order to move items without the need for special handling and the additional time and expense of packing and repacking.

The TRICONS were an important part of this repackaging effort, primarily for the large amounts of 6-inch hose that we used. Hose is an item with special requirements because it often needs to be laid over tight, rugged terrain. The TRICONS fit this task well. We moved the TRICONS as far forward as possible in connected 20-foot units that could be handled with a rough-terrain container handler (RTCH) or crane. However, once in the field, the TRICONS were disconnected so they could be moved with 10,000-pound forklifts. To do this, we had the specifications written so the TRICON would have fork pockets on three sides. The forklift then could pick up the TRICON from the rear, and we would open and latch back the front doors. The layers of hose then could be payed out as the forklift backed over the terrain. A TRICON is about the same width as the forklift, so the forklift, in effect, cleared the way for the hose. The hose was packed inside the TRICON in layers divided by $\frac{3}{4}$ -inch plywood with adjustable braces. As a layer of hose was unloaded, we would stop and make the connection and then continue paying out the next layer of hose. After use and evacuation, soldiers could repack the hose by reversing the procedure. We packed five layers of 6-inch hose for a total of 2,500 feet per TRICON, or 7,500 feet per connected assembly. With 4-inch fuel system supply point (FSSP) hose, the 110th or other units could get even more hose into their containers.

The purchase description we used was PD 8115–0101 for a TRICON with the national stock number (NSN) 8145–01–389–9184. This unit includes document boxes, optional storage shelves on the door to hold the connectors, three connectors, and three-way fork pockets that allow a forklift to pick it up from the back and pay out hose. The floor is specified to be steel diamond plate, so it is very sturdy. The TRICONS must meet all conventions for safe containers so they can be accepted worldwide for intermodal shipment. This requirement is referenced in Field Manual (FM) 42–424, Quartermaster Force Provider Company. Technical Manual (TM) 55–8145–203–13&P, Operator’s, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tool List) for Cargo Container, TRICON, is available for operators and unit maintenance personnel.

We used connectors provided by Tandemloc, part #12900BA–1PZ, as they were very reliable and allowed no sag when connected. A $\frac{1}{16}$ -inch socket or wrench was needed to attach or detach the units and could be stored with the connectors inside the TRICON.

This is an excellent method for maximizing intermodal logistics functions and allows for true field utility by breaking down into smaller, more useful packages. Good luck to Lieutenant Williams and others who can capitalize on this concept.

Steve Bump
Tulsa, Oklahoma
Steve.Bump@willbros.com

Log Notes provides a forum for sharing your comments, thoughts, and ideas with other readers of **Army Logistician**. If you would like to comment on an **Army Logistician** article, take issue with something we’ve published, or share an idea on how to do things better, consider writing a letter for publication in **Log Notes**. Your letter will be edited only to meet style and space constraints. All letters must be signed and include a return address. However, you may request that your name not be published. Mail a letter to EDITOR ARMY LOGISTICIAN, ALMC, 2401 QUARTERS ROAD, FT LEE VA 23801–1705; send a FAX to (804) 765–4463 or DSN 539–4463; or send an e-mail to aalog@lee.army.mil.

Analyzing the Lessons of OIF Distribution

BY SUZI THURMOND

The Army's combat service support (CSS) units performed miracle after miracle during Operation Iraqi Freedom (OIF). The greatest of these miracles occurred in distribution, where the pace of keeping up with combat units pushing north would have crushed a lesser logistics force. Ironically, the majority of the distribution challenges encountered in OIF were the very same ones faced in Operation Desert Storm (ODS) 12 years earlier. Apparently some of the lessons learned from ODS were merely lessons experienced.

Because of its uncompromising dedication to the soldier, the CSS community decided to address some of the distribution challenges in hopes of preventing them from occurring again. To this end, Thomas J. Edwards, Deputy to the Commanding General of the Combined Arms Support Command (CASCOM) at Fort Lee, Virginia, created a rock drill team and tasked them with bringing together key logistics leaders from OIF to aggressively address distribution challenges. The team surveyed OIF leaders on distribution issues, challenges, and insights. Once the information was gathered and assimilated, the team invited these same logistics leaders (as well as other subject matter experts) to attend a distribution rock drill at CASCOM hosted by CASCOM's commander, Major General Terry E. Juskowiak. What follows are some of the issues the rock drill examined and some of the resulting recommendations.

Distribution Doctrine

When it became apparent early in OIF that distribution operations were a battlespace challenge, CASCOM decided to reexamine the Army's keystone field manual (FM) on distribution to see if the problems were rooted in existing doctrine. In May 2003, CASCOM staffed FM 100-10-1, Theater Distribution, worldwide to see if Army leaders felt the doctrine was relevant to actions taken in OIF and if the FM needed to be revised out of cycle. The responses were lukewarm at best, with most respondents agreeing that some subjects needed to be added eventually (for example, force protection) but that the doctrine was sufficient for now and did not require immediate revision.

However, embedded media continued to report on the Army's distribution challenges. So in October, CASCOM asked specific agencies to indicate if the

distribution problem was indeed doctrinal; these agencies included the Army Materiel Command, the Surface Deployment and Distribution Command, the Defense Logistics Agency, and the Army G-4. This time, the response was a little better, but the comments were basically the same as the first staffing: a revision would be needed eventually to add new subjects, but not right now. So the answer to the question, "Do you feel FM 100-10-1 is relevant to today's operational environment?" was usually "yes."

Since the feedback was not very helpful and most of the CSS community was preoccupied with OIF at the time of both staffings, CASCOM used the OIF distribution rock drill as a "litmus test" of the need for rewriting distribution doctrine. Doctrine was discussed early in the rock drill, with the following conclusions reached—

- Doctrine is a guide, not dogma. But we still need to understand and accept what may result if we decide to deviate from or ignore doctrine.
- Doctrine provides principles and helps in making intelligent choices and plans, so we need to know, understand, advocate, and practice our doctrine.
- Nothing works without doctrine. Attendees at the rock drill said repeatedly that they knew doctrine existed, but it just was not followed.

Fuel Supply

The biggest success of OIF distribution was class III (B), bulk fuel. There were several reasons for this success. First, class III (B) operations were well rehearsed before OIF began. Second, there was only one unit in charge of theater petroleum distribution: the 49th Quartermaster Group (Petroleum and Water) owned the product and the fuel distribution system. This meant that a middleman did not delay resolution when customers had problems. The group placed a planning cell in Kuwait early to work with the Coalition Forces Land Component Command (CFLCC) staff. The planning cell convinced the CFLCC commander that using the Inland Petroleum Distribution System was the smartest way to distribute fuel. This decision enabled the group to place a company forward to operate the system. Finally, two early preparation tasks—pre-positioning seven truck companies in theater to support the movement of fuel from day 1 of combat operations and establishing a 200,000-gallon fuel

The OPTEMPO led to instances of soldiers subsisting solely on MREs for more than 21 days, which violated the Surgeon General's policy on MRE consumption.

farm at Camp Virginia, Kuwait—ensured that all requests for fuel could be met. The group was able to push fuel forward until receiving units and the system could take no more.

Other keys to success included using a single fuel (JP8, with additives as needed) and having that fuel readily available in Kuwait. Not only did the use of JP8 save lives because it is less combustible than most other fuels (which kept tanker fires to a minimum when tankers were hit by small arms fire), it also eased the strain on scarce fuel transportation assets.

Water and Ice

Soldiers supporting major operations have been drinking bottled water since ODS. Soldiers and commanders expect to drink bottled water when they deploy, even though bottles place an enormous strain on scarce distribution assets. Bottles are easier to store in both wheeled and tracked vehicle compartments, and soldiers are more likely to stay hydrated when they have easy access to water. Bottled water also can be chilled using nonpotable ice purchased from local sources. Chilling is especially critical when outside temperatures reach 120 to 140 degrees Fahrenheit, since experience has shown that soldiers will not drink hot water. Rock drill participants suggested investigating the establishment of doctrine to support the use of bottled water for drinking.

Ice and “reefers” (refrigerated vans) were in short supply during OIF. Although current plans call for leasing reefers to support all deployments, purchase appears to be a more cost-effective option for long-term deployments. During OIF, available reefers were seized quickly by forward units for chilling food products and were not returned to the theater distribution system. Resupply of ice required 20 reefers per day, and convoys needed 7 days to reach units operating in northern Iraq.

Rock drill participants recommended that the Army look at establishing both water and ice as classes of supply. This would provide visibility for water and ice when determining transportation requirements and the need for other resources in early planning.

Subsistence

During the early planning stages and initial deployment of forces to OIF, very few vendors were manufacturing meals, ready to eat (MREs), and unitized group rations (UGRs). Manufacturers had diffi-

culty ramping up to meet the Army's needs from a cold industrial base. MREs were drawn from all sources, including West Point, to try to meet the need.

To compensate for the long customer wait time in providing rations, manufacturers began taking UGRs directly from the assembly lines and packing them in ISO containers for immediate shipment overseas. This practice created problems in the theater, because a single container often would be filled with just one type of UGR (breakfast, lunch, or dinner) but not all three. It was not unheard of during OIF for soldiers to eat breakfast UGRs for all three meals for several days in a row because of the high operating tempo (OPTEMPO). OPTEMPO also led to instances of soldiers subsisting solely on MREs for more than 21 days, which violated the Surgeon General's policy on MRE consumption.

Class I (subsistence) products should be packaged for the convenience and use of the soldier. For example, meals for breakfast, lunch, and dinner should be packaged together so soldiers are not forced to eat just one type of meal. Feeding standards also need to be enforced. If MREs are the only meal being served for 21 consecutive days, they must be supplemented with ultra-heat-treated dairy products and pouch bread.

Medical Supplies

At least 10 percent of all soldiers require some type of prescription medication. During deployments, the prescription policy at mobilization stations calls for deploying a soldier with 90 days of supply (DOS) of his medicine and recording his prescription information to facilitate refills. However, because of the high OPTEMPO of OIF, problems arose when a soldier had almost exhausted his 90 DOS and needed his prescription refilled. With limited assets and the force moving so quickly, getting refills ordered and shipped to soldiers was a distribution nightmare. Host nation supplies could not be used because the Department of Defense (DOD) General Counsel prohibits the Army Medical Command from using fluids and drugs that are not on the Food and Drug Administration's list of approved medicines. So units had to reach back to major medical facilities outside of the theater, which added to customer wait time. To counter this refill problem, mobilization stations began deploying soldiers with an additional 90 DOS, bringing each soldier's total to 180 DOS.

A prescription drug reorder and delivery policy should be developed to ensure that soldiers receive

their medications in a timely manner. This policy should allow for dynamic delivery that can follow the soldier as he moves throughout the battlefield. The development of a joint, integrated, modular-capable medical logistics organization would allow for an early-entry capability for medical assets. This would allow the medical community to tailor its medical distribution system to the environment in which it is operating and ensure that medications are delivered in a time-definite distribution system.

Repair Parts

Class IX has always been a problem, and it will continue to be a problem as long as parts are needed. The OIF request for forces and time-phased force deployment data (TPFDD) did not include a theater general support (GS) company to establish a class IX GS base. The Doha, Kuwait, Area Support Group (ASG) class IX warehouse was designed to support rotational units and not the increased number of OIF units that began to draw on its stocks. As units moved to their base camps and began ordering parts, it quickly became apparent that the ASG could not support the volume requested and that the GS class IX base was not adequate to conduct operations. Units began sending expeditors to assist in sorting through the ever-increasing volume of receipts. This method was adopted by most units at each major logistics node.

Because of movement priorities and the shortage of available transportation assets, transportation allocations for class IX supply were inadequate. The priority of movement during the opening phases of OIF was class I, bottled water, and class V (ammunition). As OIF progressed, units began to task-organize to support different operations. This created significant problems within the Standard Army Retail Supply System (SARSS) and with the flow of requisitions to retasked units. Once units became more stable in assigned areas of operations and established connectivity, requisitions increased dramatically.

Connecting logisticians is the key to solving the class IX distribution problem. We need to develop a simple process that supports task-organizing at the tactical level within SARSS. We should reevaluate stockage levels at strategic, operational, and tactical locations and reevaluate the personnel and equipment structure within supply support activities.

Intransit Visibility

Radio frequency identification (RFID) automatic identification technology (AIT) is the near-term answer to letting the logistician see that logistics support is in transit. However, units deploying from the continental United States for OIF were not resourced with RFID equipment. Many of the theater CSS units came from the Reserve components (RC) and were not

familiar with RFID technology. Even units deploying from Germany encountered problems because they were not resourced with equipment to support their mission at both home station and their deployed location. RFID interrogators were set up significantly later than operation startup dates. A U.S. Central Command directive was needed to direct the use of RF tags and interrogators.

The CSS community needs to establish ownership and responsibility for RFID at the tactical, operational, and strategic levels. RFID technology should be used during peacetime operations so soldiers are comfortable with the equipment. RF tags should be used during combat training center training scenarios and during installation and deployment operations.

Force Protection

Unlike their infantry brethren, CSS soldiers have a dual mission on the battlefield: they must perform their CSS mission, but they also have a responsibility for base defense. However, the force protection mission has continued to pull CSS soldiers out of their support roles. These competing requirements must be examined to determine the appropriate mix of personnel in CSS units so those units can perform both missions effectively. CSS soldiers need to break the CSS cultural paradigm of “support only” and train as warriors first. This means incorporating tactics, techniques, and procedures and emerging lessons learned into predeployment training, updating CSS mission training plans to incorporate squad- and platoon-level tactical training, and developing theater-specific validation training and Strategic, Tactical, and Ready for Action in Combat training for CSS.

Proper resourcing of CSS units with night-vision goggles (NVGs), precision lightweight GPS [global positioning system] receivers (PLGRs), and individual body armor (IBA) enhances CSS soldiers' survivability on the modern battlefield. Currently, CSS soldiers have to share NVGs, and they have an inadequate supply of PLGRs. In OIF, soldiers bought commercial off-the-shelf (COTS) GPSs because there was a shortage of PLGRs on the tables of organization and equipment (TOEs) of CSS units and because the COTS GPSs were easier to use and carry. The allocation of IBA also was far short of what the CSS community actually needed to outfit all soldiers.

We need to fix basis of issue plans and CSS unit TOEs to include security and force protection equipment. We need to leverage emerging technology in force protection (such as unmanned aerial vehicles, jammers, passive armor, and blast mine protection). Communication systems will continue to be the backbone of force protection. The integration of vehicle tracking through AIT systems (Force XXI Battle Command Battalion/Brigade and Below and Blue Force

Tracking) will continue to be a vital link for commanders to enhance their situational awareness.

Mortuary Affairs

Mortuary teams need to be deployed early to handle the remains of those killed in action. In OIF, mortuary affairs (MA) units arrived in theater just 1 day before units crossed the line of departure and had no equipment. The Army's MA force structure consisted of one Active component (AC) and two RC MA companies. Both RC units are based in Puerto Rico and were staffed at just 40 percent. Both were activated and deployed to form one functioning company. The Army needs to develop an MA structure that supports current and future operations.

The most serious potential problem facing MA teams is handling contaminated remains. Chemically contaminated remains are processed in a fashion similar to that used for equipment, with bleach and water. However, DOD has no approved process for decontaminating remains contaminated with a biological agent. The Army needs to develop a process and the capability to handle biologically contaminated remains. It currently is investigating the use of radiation to decontaminate such remains.

Theater Distribution Center

Initially, OIF materiel flowing into Kuwait was routed through the central receiving and storage point (CRSP), a peacetime, contractor-run operation that handled materiel for rotational brigades and tenants in Kuwait. As the volume of materiel flowing into Kuwait increased and the demand exceeded contracted requirements, the CRSP's capacity was exceeded and a backlog of materiel developed at the aerial port of debarkation. An interim solution was needed, so a theater distribution center (TDC) was created at Doha.

The TDC, a nondoctrinal ad hoc organization, became the linchpin of the 377th Theater Support Command's operations. The decision to stand up the TDC was a response to the absence, at that point, of the planned GS supply activity that would have handled at least some of the TDC's functions. The TDC was under-resourced and consequently manned by ad hoc work details drawn from surrounding GS units. The GS supply units arrived in the theater significantly after the date originally planned, and the facilities designated for them were used for other purposes. Once the TDC became operational, the CRSP began transferring a substantial portion of its backlog to the TDC. Over the next few weeks, the TDC worked off the backlog, even without a GS unit in place to run the TDC.

The joint community needs to decide if a TDC is really necessary. This organization should be a joint responsibility. As part of the joint community, the Army needs to examine and, if necessary, develop doc-

trine to support the TDC within the theater joint logistics command architecture.

Training

The quality of training at all levels was a major challenge during OIF. For example, many operators of materials-handling equipment (MHE) were untrained when they arrived in theater. They performed adequately under ideal conditions; but during inclement weather, on rough terrain, in mission-oriented protective posture 4 gear, or in full load-bearing equipment, they performed less than adequately. Kalmar forklifts would have been a great asset to units, but they were not used to their full potential because of an insufficient number of trained operators.

Drivers are not cross-trained on automatic and manual transmissions. The majority of Army vehicles have automatic transmissions, so not all soldiers were able to drive vehicles with a clutch, which slowed down or even stopped some logistics missions.

Training AC units with RC units on a regular basis was a common issue throughout the rock drill, as was the need to integrate echelons-above-corps and echelons-above-division units into combat training center rotations. Training should focus on individual training, not just deployment training. The issue of funding levels for training AC and RC units was discussed, with everyone agreeing that RC units need more money to conduct relevant and realistic training.

Specialized training also is needed. Convoy defense and march discipline continue to be inadequate. Units had little live-fire training before deployment. Medical units need more training in patient tracking and class VIII resupply. Logisticians need training in supporting civil affairs units and missions and in letting contracts in a theater of operations.

Our armed forces won in Iraq, and sometimes winning dulls the feeling of urgency needed to quickly correct challenges arising during the victory. The CSS community cannot afford to let such complacency occur. We must improve Army and joint distribution capabilities and make steady progress at fixing deficiencies so, in the next war, miracles are not needed to provide our soldiers with all they need. **ALOG**

SUZI THURMOND IS A LOGISTICS MANAGEMENT SPECIALIST IN THE DOCTRINE BRANCH, JOINT AND MULTINATIONAL CONCEPTS AND DOCTRINE DIVISION, DIRECTORATE OF COMBAT DEVELOPMENTS FOR COMBAT SERVICE SUPPORT, AT THE ARMY COMBINED ARMS SUPPORT COMMAND AT FORT LEE, VIRGINIA. SHE HAS A B.S. DEGREE IN BUSINESS AND ECONOMICS FROM CHRISTOPHER NEWPORT UNIVERSITY IN VIRGINIA AND IS A GRADUATE OF THE ARMY FORCE MANAGEMENT COURSE. SHE ENTERED GOVERNMENT SERVICE THROUGH THE TRANSPORTATION INTERN PROGRAM AT FORT EUSTIS, VIRGINIA.

Planning a CSS Live-Fire Exercise in Korea

BY MAJOR LEON G. PLUMMER AND CAPTAIN ERIC A. MCCOY

Conducting a live-fire exercise (LFX) may seem routine for most conventional combat and combat support units, but for combat service support (CSS) units, such an exercise can be challenging. LFXs are not emphasized in CSS units as much as they are in other units of functional branches. The fateful experiences of U.S. troops such as the 507th Maintenance Company in Iraq have generated a new emphasis on the importance of realistic live-fire training for CSS units.

The ability to react to enemy contact and engage weapon systems in response to convoy attacks and ambushes is essential to the overall success of any operation. Logistics plays a vital role in the combined arms fight, so it is imperative that CSS units be trained to survive on the battlefield and continue to provide supplies and services to the front lines.

The environment can play an important role in a unit's ability to survive on the battlefield, and Korea offers a realistic and challenging training environment. The 2d Forward Support Battalion (FSB), which supports the 2d Brigade Combat Team at Camp Hovey, Korea, is responsible for leading logistics units in LFXs in the 2d Infantry Division Support Command (DISCOM). With the ongoing political dialogue and threat of conflict with North Korea, it is imperative that the battalion live up to the division's motto: "Ready to Fight Tonight." The following chronology

of events leading up to and through a successful LFX conducted by the 2d FSB is presented as an example that may help in equipping other CSS units to survive on the battlefield.

Planning

In his fourth quarter fiscal year 2002 training guidance, the 2d FSB commander directed the battalion to conduct a squad-level defensive LFX in conjunction with a battalion field training exercise. After a thorough mission analysis, the battalion executive officer and S-3 developed a precertification checklist and training plan for the battalion's subordinate companies. Precertification tasks were developed following the Infantry Company's mission training plan and the mission-essential task list (METL) directive to "Conduct a platoon defense." Subject-matter experts from the 2d Brigade Combat Team also provided guidance during the development of the training plan.

As a lead-in to the squad defensive LFX, training was conducted during weekly sergeants' time training and as part of company- and platoon-level situational training exercises. This training focused on troop-leading procedures, precombat checks and inspections, weapons familiarization, and fire-control and -distribution methods. Preliminary training also was conducted in the Camp Hovey Engagement Skills Center to give squad leaders and their teams confidence in engaging targets and controlling fires.

Resourcing the LFX was our first problem. The Standards in Training Commission (STRAC) typically does not allocate a significant amount of ammunition for CSS units to conduct training other than basic weapons qualification at category II levels (group headquarters, headquarters and headquarters company, and battalion-support units). (STRAC was established in 1982 by the Vice

Soldiers call for fire while engaging the enemy during live-fire training.



Chief of Staff of the Army to determine the quantities and types of munitions essential for soldiers, crews, and units to attain and sustain weapon proficiency.) We worked around this constraint by reallocating the unused division ammunition that was available after the year-end closeout.

Our second challenge was finding a range facility suitable for conducting an LFX. The Korean Training Center (KTC), also known as Rodriguez Range, is the only U.S. multipurpose range complex on the Korean peninsula. As such, the KTC is occupied, or in a “hot” status, more than 300 days of the year. Priority for use goes to armor, mechanized infantry, and cavalry units. As a result, it is hard to find time to conduct CSS defensive training. However, through coordination, we found that two of the KTC’s larger range facilities were available between gunnery cycles—the Infantry Squad Battle Course for blank-fire operations and Cherokee Valley for live-fire operations.

Training

Our LFX training was conducted in three phases: crawl, walk, and run.

Crawl. The crawl phase, which was really the pre-certification phase, took place during July, August, and September 2003. During that time, squad and platoon training focused on the METL directive to “Defend assigned area.” Battalion training events also were incorporated in a division artillery external evaluation, a mechanized infantry battalion gunnery, and a company field training exercise. The battalion staff’s military decisionmaking process conducted during this time set optimum conditions for the LFX. The conclusion of the crawl phase was a movement rehearsal and an LFX concept brief to the DISCOM commander and the assistant division commander for support.

Walk. The walk, or execution, phase of the LFX began with the deployment of the battalion from Camp Hovey and the establishment of a brigade support area (BSA) at the KTC. Once the BSA was established, the battalion S-3, in conjunction with the battalion commander, executive officer, and range officer in charge, conducted a tactical exercise without troops (TEWT) with the company commanders, first sergeants, platoon leaders, and platoon sergeants. The purpose of the 2-day TEWT was to familiarize all leaders with the concept of training, the LFX scenario, and range safety procedures. During the TEWT, the 2d FSB command sergeant major also conducted a hands-on noncommissioned officer (NCO) development program on how to establish a squad defensive perimeter. The purpose of the program was to refresh fieldcraft skills such as constructing individual and crew-served fighting positions to standard, establishing communications, and developing a sector sketch. The walk



Once the defensive perimeter is established and the squad is in position, the squad leader calls in an occupation report.

phase concluded with blank- and live-fire iterations with squad observer-controllers (platoon leaders and platoon sergeants) and the battalion quick-reaction force to validate the LFX course.

Run. The run phase began with validation of the units for live fire. Each squad was tested over a 2-day period. The squads were staggered so four iterations of blank and live fires could be conducted each day. The blank and live fires were preceded by dry-fire rehearsals that were conducted in the BSA by the squad leaders and validated by the company commander. The squad leaders rehearsed receiving the warning order or fragmentary order, conducting precombat checks and inspections, moving to a new area of operations, establishing a defensive perimeter, and reacting to enemy threats to the squads or platoons.

Once certified by the company commander, each squad trained on troop-leading procedures and prepared for the next day’s deployment to the blank- and live-fire ranges. At 0600 the next morning, the squad leader deployed with his squad from the BSA to the blank-fire site. There, the range safety officer briefed the squad on range safety and the squad leader trained the troops on tactical dismounted movement to the tactical assembly area (TAA).

At the TAA, the squad rehearsed actions on the objectives and their battle drills and moved to the ready line, where construction and barrier materials were preconfigured in order to establish a defensive perimeter quickly. When the defensive perimeter was established, the squad was issued blank ammunition, and the platoon leader reported an inbound enemy threat to the squad leader by radio.

The squad then began its defense against an attack, which was simulated by pop-up targets. The senior

observer-controller programmed the target scenario to escalate or deescalate the attack based on how well the squad reacted to the enemy threat. For blank fires, each squad was outfitted with Multiple Integrated Laser Engagement System transmitters. The targets had laser target interface device “thumpers” that signaled enemy hits, which enhanced the soldiers’ confidence with their assigned weapons. The pop-up targets also were equipped with smoke and artillery simulators that randomly detonated to replicate battlefield effects.

After all of the ammunition was expended, the proper situational awareness reports were sent to higher headquarters, the scenario changed to an enemy withdrawal, and a cease-fire was ordered. The squads cleared their weapons, safety checks and reports were completed, and the squad leaders and the battalion commander conducted an after-action review. The soldiers then moved on to the live-fire site, Cherokee Valley.

At Cherokee Valley, the soldiers again received a range safety briefing and began live-fire rehearsals. Then each squad leader certified to the battalion commander that his squad was prepared to conduct live-fire operations. The battalion and company commanders signed the certification checklist and risk assessment authorizing the squad to conduct live fires.

Once the squad established its defensive perimeter and was in position, the squad leader called in an occupation report and the observer-controllers issued live ammunition to each squad leader for distribution to his squad. The squad leader received an imminent threat warning order and, when directed by the observer-controller, ordered his squad to lock and load ammunition. The target scenario began with detonation of grenade and artillery simulators and activation of the pop-up targets. Based on squad reactions and fire control, the scenario can be adjusted to replicate small-unit-, squad-, or platoon-level threats.

When the units met their training objectives or all of their ammunition was gone, weapons were cleared, a cease-fire was called, and, as in the blank-fire training, the squad leaders met with the battalion commander for an after-action review and the squad redeployed to the BSA.

Lessons Learned

A total of 16 squads from our supply, maintenance, and medical companies conducted LFXs to standard over a 5-day period. Squads left the weapons range more confident in their weapon systems and combat capabilities and with the following lessons for follow-on squads—

- Identify needed resources early. Plan LFX events 12 to 18 months in advance to make sure that ammunition and ranges for training are resourced. To be successful, platoon-level LFX scenarios (convoy, react to

contact, and military operations on urban terrain) often require large, multiecheloned training areas, various quantities of ammunition, and training aids.

- Involve NCOs and subject-matter experts. Their experience is critical in the planning and risk-mitigation phase of live-fire training. Units in the continental United States often have convoy and CSS LFX training lanes set up on post. The experience of the NCOs with these lanes is essential in Korea, where lane scenarios are often built from scratch.

- Make training realistic and battle focused. Every aspect of the training must be tactically oriented and focused on daily CSS missions. Incorporate other training, such as mounted land navigation, communications training, and convoy procedures, into the scenario whenever possible.

The enemy threat in Korea, as well as in other contingency theaters around the world, requires that CSS elements, such as LOGPACs (logistics packages), ammunition exchange points, and maintenance collection points, be able to defend themselves in either mobile or static scenarios. We can no longer assume that we will have combat arms or military police assets for force protection. Every soldier must be a rifleman by necessity.

Live-fire training for the CSS community emphasizes this mentality and complements the warrior ethos, which is the driving force for training in the 2d Infantry Division. The training model outlined above probably can be modified in many ways, but here’s the bottom line: Warfighters depend on logisticians for fuel, arms, and supplies. Logisticians must be able to defend against and defeat the enemy in order to support the warfighters.

ALOG

MAJOR LEON G. PLUMMER IS THE EXECUTIVE OFFICER OF THE 2D FORWARD SUPPORT BATTALION, 2D INFANTRY DIVISION SUPPORT COMMAND, AT CAMP HOVEY, KOREA. HE HAS A BACHELOR’S DEGREE IN POLITICAL SCIENCE FROM FLORIDA A&M UNIVERSITY AND A MASTER’S DEGREE IN ADMINISTRATION FROM CENTRAL MICHIGAN UNIVERSITY. HE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE, THE COMBINED LOGISTICS OFFICERS ADVANCED COURSE, AND THE COMBINED ARMS AND SERVICES STAFF SCHOOL.

CAPTAIN ERIC A. MCCOY IS THE COMMANDER OF E COMPANY, 702D MAIN SUPPORT BATTALION, AT CAMP CASEY, KOREA. WHEN THIS ARTICLE WAS WRITTEN, HE WAS THE BATTALION S-3 OF THE 2D FORWARD SUPPORT BATTALION. HE HAS A BACHELOR’S DEGREE IN MENTAL HEALTH FROM MORGAN STATE UNIVERSITY AND A MASTER’S DEGREE IN ADMINISTRATION FROM CENTRAL MICHIGAN UNIVERSITY. HE IS A GRADUATE OF THE COMBINED LOGISTICS CAPTAINS CAREER COURSE.

DLA Creates J-4

BY COLONEL WILLIAM H. TAYLOR III AND CHIEF WARRANT OFFICER (W-4) EDDIE MURPHY

The Defense Logistics Agency has established a new directorate to improve its support to the services. One result will be a stronger partnership with Army logisticians.

The “shock and awe” that characterized the race to Baghdad in Operation Iraqi Freedom can be related directly to our Nation’s logistics prowess. The unified efforts achieved by Army and Department of Defense (DOD) logisticians in support of Army forces on the ground in Southwest Asia certainly were key to ousting the regime of Saddam Hussein.

As Operation Iraqi Freedom unfolded, dynamic shifts in the battlespace and evolving geopolitical goals created new challenges throughout our logistics network. From the factory to the foxhole, Army and Defense Logistics Agency (DLA) logisticians worked in tandem to meet a surge in battlefield requirements that strained the U.S. industrial base and highlighted pitfalls in our in-transit visibility and distribution capabilities.

Tacticians predict that future conflicts will be marked, like Iraqi Freedom, by rapidly changing task organizations and widely dispersed logistics and combat operations. Austere conditions and a fragmented distribution structure with no single point of authority will continue to stress our ability to collectively sustain our fighting forces. The result of all of these factors will be a mandate to form greater alliances throughout DOD.

In both Afghanistan and Iraq, when shortfalls occurred and the execution of logistics plans failed to follow doctrine, particularly in the “last tactical mile,” it was the innovative soldier who proved vital in achieving operational success. Since Operations Enduring Freedom and Iraqi Freedom began, the U.S. Transportation Command (TRANSCOM) has been designated DOD’s Distribution Process Owner. TRANSCOM has partnered with DLA, the Army, and other logistics stakeholders to work on initiatives that address the weaknesses in the “last tactical mile” and other in-theater transportation and distribution issues. DLA and the Army continue to develop partnerships and have developed missions and goals that will enhance their logistics interoperability.

Army Logistics Transformation

The DLA Strategic Plan directly supports the Army G-4 White Paper published in October 2003. This

paper highlights four focus areas at the top of the Army’s logistics priorities: connect Army logisticians, modernize theater distribution, improve force reception, and integrate the supply chain. Ultimately what this means for the Army is improved requirements determination; true end-to-end supply chain distribution; more effective DLA and Army collaboration; more efficient operations architecture and fiscal execution; and a fully integrated information management system. To demonstrate its commitment to helping the Army define and implement its logistics transformation, DLA has established a Customer Operations and Readiness Directorate (J-4).

DLA Reorganization

In June 2003, Vice Admiral Keith Lippert, the Director of DLA, made the decision to stand up the new J-4 organization to “align the agency’s customer support strategies with the warfighter.” The J-4 vision is to ensure that customers’ voices are heard and that DLA acts as an advocate for the Army and the other services, not just as a manager of transactions. This advocacy role will ensure that customers are served effectively; it also will drive change, ensuring that DLA continuously adapts to meet the customers’ needs.

Lippert stated, “We will build value for the warfighter by establishing mutually rewarding customer relationships, anticipate requirements, and ensure customer focus throughout DLA.” The J-4 will engage customers around the world and will maximize readiness and logistics combat power by leveraging an enterprise solution. Although the J-4 will be the DLA’s “face” to the customer, the shift to customer relations management is an agency-wide initiative that will result in major benefits to the Army. The key functions of the J-4 will include customer operations, performance measurement, and program support.

Account Managers

The new J-4 includes military service teams that consist of senior military and civilian personnel who engage their assigned service proactively at every level. Each military team is led by a national account

manager (NAM). The NAM is a senior military officer who serves as the primary manager dedicated to providing logistics support to his assigned service and that service's full range of weapon systems.

Colonel Bill Taylor, the Army NAM, is responsible for working at the Army G-4 and Army Materiel Command levels to dovetail DLA and Army readiness and support initiatives. He recently stated, "Our goal is to ensure that the Army's weapon systems exceed established readiness goals and that the soldier receives what he needs, when and where he needs it, on time, every time." The Army NAM and his staff serve as the "eyes and ears" for DLA, interfacing and collaborating with senior Army representatives to resolve DLA and Army logistics issues that affect military and national security objectives. They participate in weekly, monthly, and quarterly meetings and forums to interface with the Army's senior logisticians to plan and assess the Army's needs and support requirements as well as to facilitate collaboration with the customer as required.

An Army Materiel Command liaison officer and a senior Army National Guard representative are on the Army NAM's staff, and plans are being developed to place a DLA representative within the Army G-4. Customer account managers have been established for the headquarters of AMC, the Army Training and Doctrine Command (TRADOC), and the Army Forces Command (FORSCOM). They serve in a strategic capacity as DLA's technical managers for logistics support to the Army. Other initiatives are underway to integrate training on DLA products and services within the Quartermaster, Ordnance, and other Army logistics schools.

Customer Support Representatives

The Army NAM has over 30 customer support representatives (CSRs) located at AMC headquarters, AMC's major subordinate commands and depots, TRADOC and FORSCOM headquarters, and various FORSCOM installations, including the National Training Center. The J-4 also has positioned CSRs throughout the European, Pacific, and Southwest Asia theaters, liaison officers with the combatant commanders, and DLA contingency support teams within theaters of operations. Through these customer touch points, DLA can better determine customer requirements, educate Army logisticians, and quickly resolve support issues.

DLA representatives attend Army G-4 logistics operations meetings on a regular basis and numerous video- and teleconferences in order to gain intelligence about DLA's current and future support operations. The CSRs work with Army commanders at every level to ensure that they have what they need to train their

units adequately or to deploy those units into combat. DLA also participates in the Army's Strategic Readiness Review and the Army Strategic Readiness Update to the Chief of Staff of the Army to provide assessment and analysis of DLA's support to the Army and determine future requirements.

Performance-Based Agreements

Following the establishment of DLA's new J-4, each service signed a performance-based agreement (PBA). This agreement describes measurable services, performance levels, and customer-focused metrics that are based on customer requirements and expectations. Vice Admiral Lippert and the Army Deputy Chief of Staff, G-4, Lieutenant General C.V. Christianson, signed the Army-DLA PBA on 5 December 2003.

The PBA established a collaborative partnership between the Army and DLA to support Army readiness. The PBA supports Force-Centric Logistics Enterprise objectives such as end-to-end distribution, performance-based logistics, and total life-cycle management support. The Army-DLA PBA establishes a framework for cooperation to improve DLA support to the Army and establishes a Partnership Agreement Council comprising Army and DLA members. This council will meet quarterly to determine targets of opportunity for action, establish or adjust metrics as required, and measure improvements.

As the Army continues to transform to a more logistically efficient and rapidly deployable force, DLA will be there to help. Together, DLA and the Army will build and sustain a distribution-based logistics system with the capability and agility to ensure warfighter readiness and materiel availability, anytime, anywhere. To that end, we are making progress every day, and, in good Army fashion, we say HOOAH!

ALOG

COLONEL WILLIAM H. (BILL) TAYLOR III IS THE ARMY NATIONAL ACCOUNT MANAGER, J-4, DEFENSE LOGISTICS AGENCY, AT FORT BELVOIR, VIRGINIA. HE HAS A B.S. DEGREE FROM VIRGINIA STATE UNIVERSITY, A MASTER'S DEGREE IN LOGISTICS MANAGEMENT FROM CENTRAL MICHIGAN UNIVERSITY, AND A MASTER'S DEGREE IN NATIONAL RESOURCE STRATEGY FROM THE NATIONAL DEFENSE UNIVERSITY. HE IS A GRADUATE OF THE QUARTERMASTER OFFICER BASIC AND ADVANCED COURSES, THE COMBINED ARMS AND SERVICES STAFF SCHOOL, THE ARMY LOGISTICS MANAGEMENT COLLEGE'S LOGISTICS EXECUTIVE DEVELOPMENT COURSE, THE ARMY COMMAND AND GENERAL STAFF COLLEGE, AND THE INDUSTRIAL COLLEGE OF THE ARMED FORCES.

CHIEF WARRANT OFFICER (W-4) EDDIE MURPHY IS THE ARMY READINESS OFFICER AT THE DEFENSE LOGISTICS AGENCY AT FORT BELVOIR, VIRGINIA.

Frontline Support of the First SBCT at War

BY LIEUTENANT COLONEL DENNIS M. THOMPSON

The Army continues to implement the transformation processes set in motion by General Erik K. Shinseki in October 1999. One of the fruits of that transformation, the first Stryker Brigade Combat Team (SBCT)—the 3d Brigade, or “Arrowhead Brigade,” 2d Infantry Division, from Fort Lewis, Washington—deployed in November 2003 to support Operation Iraqi Freedom. The Arrowhead BCT’s first major combat operation took place in and around the city of Samarra. Having successfully completed that mission, the brigade has settled into the Mosul area and has the opportunity to report some of the combat service support and combat health support lessons learned by the 296th Brigade Support Battalion (BSB), which supported the brigade during the Samarra operation. The motto of the 296th BSB is “Frontline Support,” and its “Frontline Soldiers” lived up to that motto during this operation.

While the Arrowhead BCT operations focused primarily on Samarra, soldiers from the 296th BSB were dispersed across an area of operations equal in size to the state of Connecticut. During the planning and execution of the support for this operation, called “Arrowhead Blizzard,” it became clear that, to be successful, we had to think and operate far beyond the parameters established by Army planners in the draft doctrine for BSB operations. For the benefit of Army

doctrine writers and other Stryker brigades that are preparing for operational deployments in the future, I would like to relay some of the lessons learned during the support of the Arrowhead Brigade by the 296th BSB and others.

Training

As part of its deployment preparation, the BSB participated in a rigorous training program that began in July 2002 and culminated in its 2003 deployment. During that time, the BSB supported brigade elements twice at the National Training Center at Fort Irwin, California, once at the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, and numerous times at the Yakima Training Center in Washington and participated in several field training exercises at Fort Lewis. After returning from the JRTC in early June 2003, the Arrowhead Brigade recovered its equipment from several transportation nodes, including equipment that had been used in a joint logistics-over-the-shore exercise.

A photograph showing a long line of military vehicles, including trucks and armored cars, moving along a dirt road at dawn. The vehicles' headlights are on, illuminating the path ahead. The sky is a mix of orange and purple, indicating the time is just before sunrise. The vehicles are part of a convoy, and the scene is set in a desert environment.

A 296th Brigade Support Battalion convoy departs Field Operating Base Pacesetter just before sunrise.

After returning from leave, the 296th BSB soldiers developed a training plan that would prepare them for deployment. At the same time, the combat repair teams (CRTs) and field feeding teams were attached to supported battalions, which allowed the BSB to retain Uniform Code of Military Justice and rating authority. This relationship permitted the BSB's soldiers to train and support according to their supported unit's schedule and minimized confusion or tension between the battalion and the supported unit.

The BSB training plan was based on a staircase approach that began with individual survival skills, including focused individual and crew-served weapons training. The next step—small-unit collective

training—concentrated on LOGPAC (logistics package) battle drills, vehicle recovery, casualty evacuation, actions on contact, and convoy live-fire training. By this time, the BSB was receiving a wealth of lessons learned from units already operating in Iraq. From their experiences, we learned the importance of hardening our soft-skinned vehicles and being able to navigate and fire effectively from them. Continuous improvement of our LOGPAC tactics, techniques, and procedures (TTP) was our number-one training priority before deployment.

In September 2003, the Arrowhead Brigade conducted a warfighter simulation exercise (SIMEX) in conjunction with a brigade field training exercise (FTX).



The SIMEX focused on our staging, onward movement, and integration operations in western Iraq. This gave the BSB an opportunity to analyze the terrain and time-distance factors for movement and to build a support concept for a brigade operating across a dispersed battlespace. As a result, some of the support procedures that we would use later in theater took shape.

Concurrent with the SIMEX, the BSB established operations at Fort Lewis to simulate support from a built-up area. Not having to relocate to the field allowed our forward maintenance company more time to repair and maintain the brigade's equipment in preparation for deployment. Because establishing the brigade support area (BSA) in a built-up area was a first for us, we were forced to think differently than we had before about support and force protection. Currently, we are conducting support operations in a built-up area in Mosul.

During the FTX, we established LOGPAC standards that we continue to follow in Iraq: no less than three vehicles in every convoy; at least two crew-served weapons mounted on pedestal or ring mounts; use of the Force XXI Battle Command for Brigade and Below system; an effective communications system; and at least one combat lifesaver.

This FTX gave our supporting corps support battalion its first opportunity to work with the Arrowhead BCT. It takes time for non-Stryker units to understand the unique Stryker brigade support structure. The FTX allowed both the corps support battalion and the BSB to work together and develop a support relationship. I highly recommend that all future SBCTs establish support relationships with their echelons-above-brigade (EAB) element and include it in all training events. A full understanding of the support enablers required and the limits and capabilities of the BSB will foster a mutually beneficial support relationship between the EAB element and the brigade.

Deployment

The BSB's first major task in Kuwait was to receive and move the brigade's equipment from the port of Ash Shuaybah, Kuwait, to Camp Udairi. To do this, we stationed six soldiers at the port, including representatives from the support operations transportation office, the brigade mobility cell, and the brigade S-4. At Camp Udairi, we established a movement control team, led by the support operations transportation officer, to track inbound convoys from the port and report updates to the brigade tactical operations center as combat power was built. We also deployed our support operations maintenance officer, our materiel management officer, an ammunition technician, and a food service technician with the brigade advance party to establish and open accounts and conduct liaison with

theater support agencies.

Key tasks for the BSB at Camp Udairi included receiving, accounting for, and reconfiguring equipment; making several force protection modifications to the Stryker, including installing slat armor; and conducting live-fire training. This training consisted of hands-on drills on all weapons, intensive close-quarters marksmanship training, IED [improvised explosive device] awareness, and, finally, a 3-day convoy live-fire event in which soldiers fired from both sides of the vehicle while moving. Without a doubt, this was the most important event we conducted at Camp Udairi. Within hours of the start of the event, I could see soldiers' confidence grow enormously in their ability to handle their weapons safely and engage targets effectively.

The training forced our leaders to conduct troop-leading procedures within a constrained timeline. This was a huge confidence builder for young leaders and soldiers. It was inspiring to watch our soldiers aggressively, but with discipline, engage targets on the move, form a "box" formation for security, and recover simulated casualties and equipment while pulling security. The confidence that this drill alone instilled in our soldiers cannot be overstated. This type of training is an absolute must for all BSBs preparing to deploy. I also would encourage more time be dedicated to IED detection and battle drills.

Most of the preparation and planning for the Arrowhead BCT's first combat operation was completed at Camp Udairi. Moving the brigade from Kuwait into position near Samarra in Iraq required coordination with the 3d Corps Support Command, 4th Infantry Division (Mechanized), 64th Corps Support Group, Coalition Forces Land Component Command, and Combined Joint Task Force 7 elements. A combined arms rehearsal and a combat service support/combat health support rock drill that focused on moving and operating within the brigade area of operations took place on 12 November, and the brigade began to move on 2 December. Each main body move took 2 days, with the final element closing into Forward Operating Base (FOB) Pacesetter on 9 December.

Combat Operations

After the Arrowhead BCT's move, its mission was to "eliminate all noncompliant forces in its area of operations, facilitate the establishment of interim local governments, and support economic development in order to provide a secure and stable environment for the smooth transitioning to a new Iraqi Government." The end state would be reached when the "SBCT had created a safe and secure environment in the Diyala Province and transitioned the area of operations into an environment where former regime loyalists are suppressed, an interim government is established, and civil

Through innovative thinking and plain old anticipatory logistics, the BSB can support the brigade across a dispersed battlefield and can split its resources to meet brigade requirements.

infrastructure restoration and economic development are progressing.”

Certain tasks were critical to attaining this end state. We had to establish logistics communications connectivity across the brigade and emplace liaisons to coordinate support with the 7th Corps Support Group and the Stryker Forward Repair Activity. We also had to make sure the BSB was at or near 100-percent operational readiness, ensure that all unit basic loads were issued, and carry 4 days of supplies forward. The BSB was task-organized in a way that would guarantee us an immediate support base at FOB Pacesetter; provide a logistics support team for the 2d Battalion, 3d Infantry Regiment (2–3 Infantry Battalion), which was attached to the 3d Brigade, 4th Infantry Division; ensure that EAB support was established before we arrived at FOB Pacesetter; and provide force protection throughout all operations.

Task organizing the BSB for this operation, although somewhat contrary to the doctrinal design of the BSB, was essential to supporting the brigade across a dispersed battlefield. The task organization consisted of the battalion pure, minus the support team with the 2–3 Infantry Battalion; an Army Materiel Command logistics support element team led by a chief warrant officer (W-4); a group of 11 interim contractor logistics support Stryker mechanics to augment the forward maintenance company effort; and an EAB forward logistics element comprising a postal detachment and a shower, laundry, and clothing repair team. The 2d Platoon of the 334th Signal Company provided habitual support to the BSB tactical operations center. We placed an automated logistics non-commissioned officer (NCO) at the theater distribution center in Arifjan, Kuwait, and a captain and an ammunition NCO at the corps distribution center in Logistics Support Area (LSA) Anaconda in Balad, Iraq, to serve as liaison officers and parts expeditors. The Anaconda team also conducted liaison with the 64th Corps Support Group; expedited Arrowhead BCT supplies, with emphasis on class IX (repair and spare parts); coordinated class V (ammunition) received from the ammunition supply point at Anaconda and its distribution to the brigade; and assisted the logistics support team supporting 2–3 Infantry Battalion.

The brigade operational set for this mission had the 2–3 Infantry Battalion task-organized to the 3d

(Stryker) Brigade, 4th Infantry Division. The 2–3 Infantry “Patriots” were operating out of FOB Eagle just outside of LSA Anaconda. The 1st Squadron, 14th Cavalry Regiment (1–14 Cavalry Battalion), was charged with establishing area security in order to isolate Objective Lewis (eastern Samarra), which would facilitate clearance by the Infantry battalions. Once the cordons and traffic control points were set, the 5th Battalion, 20th Infantry Regiment (5–20 Infantry Battalion), would move through the northern sector of the city to clear Samarra of noncompliant forces in order to deny the enemy sanctuary. The 1st Battalion, 23d Infantry Regiment (1–23 Infantry Battalion), moving into the southern end of the city, would have the same mission, task, and purpose. The 1st Battalion, 37th Field Artillery Regiment (1–37 Field Artillery Battalion) was tasked to provide area and route security in the Lakewood and Tacoma areas of operations in order to allow the brigade freedom of maneuver and prevent disruption of Arrowhead BCT operations. The artillery battalion also ran the BCT’s forward detainee transfer point site to hold noncompliant forces.

Since the 2–3 Infantry Battalion was detached from the Arrowhead Brigade, the 296th BSB felt it essential that the 2–3 Infantry Battalion have a robust support package to ensure their requirements were met while retaining the ability to surge support to the 2–3’s companies as required. We augmented the CRT with 7,600 gallons of fuel delivered on two M978 heavy, expanded-mobility, tactical truck (HEMTT) fuel tankers, each carrying 2,300 gallons of fuel and pulling a load-handling system (LHS) trailer that carried three 500-gallon fuel blivets, which gave us flexibility to position fuel assets in several locations; four HEMTT-LHSs carrying six 500-gallon water blivets each; 3 days’ supply of meals, ready to eat; bottled water; and additional packaged class III (petroleum, oils, and lubricants), class IV (construction and barrier materials), and class V.

We also augmented the CRT with an electronic maintenance and generator repair capability. This augmentation consisted of 6 soldiers in addition to the 18 that usually support the battalion. The augmented CRT, combined with the fuel, water, and transportation assets, replicated the support platoon concept found in legacy maneuver battalions and simultaneously conducted distribution-based logistics from LSA Anaconda for all classes of supply except IX. We pushed



Stryker combat vehicles wait to provide security for a convoy that is ready to roll out of Camp Udairi, Kuwait.

repair parts from FOB Pacesetter and LSA Anaconda. The Stryker Forward Repair Activity at LSA Anaconda also provided repair parts for the Strykers when required.

To support operations in the northern sector of the brigade's area of operations, we collocated a forward logistics element (FLE) with the 1-37 detainee transfer site. The FLE had rations, six 500-gallon blivets of water, six 500-gallon blivets of fuel, ammunition, and two medical evacuation squads. This element provided support to the 1-14 Cavalry, 5-20 Infantry, and 1-37 Field Artillery Battalions, while a similar package was collocated in the 1-23 Infantry Battalion's combat trains command post area to provide forward support at the infantry battalion level. The remainder of the BSB supported the Arrowhead BCT from FOB Pacesetter by pushing LOGPACs every other day along Main Supply Route Dover (the southern route to the 1-23 Infantry Battalion) and Alternate Supply Route Grape (the northern route to the 5-20 Infantry, 1-14 Cavalry, and 1-37 Field Artillery Battalions). Company C, 52d Infantry Battalion, maintained route security. Following the baseline established by the Arrowhead BCT, each convoy consisted of at least four vehicles, and we usually had at least six crew-served weapons at the ready when we departed FOB Pacesetter. Our TTP also provided for an advance element (two high-mobility, multipurpose, wheeled vehicles with crew-served weapons and communications capability) to screen the route and a trail party (with the same configuration) to provide rear security and conduct actions on contact. This may seem costly in terms of vehicles and soldiers, but it is cheap when compared to the payoff in force protection and

the value of a show of strength.

Therefore, as the Arrowhead BCT began operations, the BSB positioned tailored support teams in three different locations throughout the area of operations. The remainder of the BSB provided support from FOB Pace-

setter. Although distances from the FOB to any point were relatively short (not longer than 30 miles), our resources were spread thin with minimal to no redundancy in place. Concepts developed and refined during our 18-month train-up for this operation were proven to work in combat operations. Our every-other-day LOGPAC to companies provided "as ordered" sustainment down to the company level and minimized the exposure time of our drivers and equipment. Forward positioning of medical, fuel, and water assets also allowed us to minimize our time on the road and to have mobile, responsive support forward on the battlefield where it was needed. From lessons learned at the training centers, we modified our distribution TTP so that, instead of dropping flatracks at logistics release points, we simply dropped the required sustainment (usually packed on wooden pallets) on site and drove away with our flatracks. This "combat offload" allowed us to retain control of our flatracks.

Lessons Learned

Perhaps the biggest overall lesson we learned is that the BSB must be prepared to task-organize and flex in order to support the SBCTs. During the development of the BSB doctrine, we were constantly reminded of the need to reduce the logistics footprint and to plan and forecast requirements accurately and on time in order for the limited BSB assets to be able to support the SBCTs successfully. Our experiences thus far in supporting the Arrowhead BCT have shown that, through innovative thinking and plain old anticipatory logistics, the BSB can support the brigade across a dispersed battlefield and can split its resources to meet brigade requirements. We have proven that the

structure can readily support various maneuver battalion concepts of operation simultaneously. Because of this agility, we have routinely task-organized several different support elements depending on the brigade or battalion operational set.

Other examples of how we have flexed our organization include the following—

- We positioned our medical company assets across the battlefield and forward-positioned evacuation ambulances with each battalion main aid station. This is routine in most medical companies in forward support battalions across the Army. However, we have taken our medical coverage one step further and split our treatment assets to give us split level II medical care capability. (Level II care includes physician-directed resuscitation and stabilization and may include advanced trauma management, emergency medical procedures, and forward resuscitative surgery.)

- During the Samarra battle, we positioned a treatment team and a doctor forward with two frontline ambulances at each of the two FLE locations to provide enhanced medical care forward on the battlefield.

- We forward-positioned fuel and water blivets in order to store and issue retail fuel and water at the maneuver battalion level and thus reduce the frequency and the density of LOGPACs to each battalion location. Augmentation of each CRT with additional electronics, armament, and generator repair capability minimized the volume of equipment required to evacuate to the BSA.

- As the maneuver task organization changed, we reorganized our maintenance support to reflect the changes and added or deleted units to the major unit's Unit-Level Logistics System-Ground terminal. We "pulse" maintenance capability forward when needed to augment the CRTs that provide support for more than the normal maneuver battalion organization.

As important as it is for BSB's to be flexible, it is equally necessary for EAB support organizations to understand the SBCT support concept and the BSB organization. Multiple logistics reporting chains, with numerous agencies asking for the status of our brigade, become burdensome and tedious. Although the BSB is not designed to do so, we often have been required to send assets rearward to pick up supplies and evacuate equipment. Just as we must be flexible and change our task organization and our troop-to-task list to support the fight, EAB organizations also must be flexible. Mobility for the brigade and battalion is lessened unless the supporting logistics architecture is flexible and able to conduct distribution-based logistics. Although plenty of assets may be positioned in theater, units often have no way to get them without resorting to supply point distribution. Implementation of strategic-configured loads will assist theater assets and

the BSB greatly in providing distribution. (To date, BSB soldiers have done most of the load configuration.)

Admittedly, much of what we do is no different from what forward support battalions do every day when deployed. However, we have capabilities that they do not, such as materiel management center capabilities in the support operations section, embedded civilians, organic preventive medicine, and laboratory and x ray facilities. At the end of the day, it's all about providing first-rate assistance to the supported unit.

Now that we are in Mosul, our concept of operations and support has changed in keeping with our brigade's mission and the existing support infrastructure. What hasn't changed is the BSB's ability to provide tailored and "before they need it" support across the area of operations and rapidly transition its support structure from one mission set to the next.

I am privileged to serve with an innovative and enthusiastic group of young leaders who work assiduously to ensure we are providing support in the best possible manner. The "Frontline Soldiers" of the 296th BSB are the unsung heroes in what we do. Every day, I am in awe of the professional and disciplined manner in which our soldiers carry out their mission and the great attitude they maintain. All of the soldiers in the battalion truly support like champions.

I also must give credit to the external organizations that have assisted us. The Arrowhead BCT Logistics Support Element; the Program Manager-Stryker; the interim contract logistics support Stryker mechanics; the Stryker Brigade Coordination Cell at Fort Lewis; the Arrowhead BCT Central Technical Support Facility; and the Army Combined Arms Support Command at Fort Lee, Virginia, are but a few of the organizations that have played critical roles in our ability to provide support. So far, the operation truly has been an "Army Team" success story.

The lessons learned that I have presented have been compiled from information provided by many frontline support leaders. We hope that these lessons will be of value to follow-on BSBs and show that the BSB and the fundamental support concept for the Stryker Brigades provide a viable framework on which each unit must build its own support approach. **ALOG**

LIEUTENANT COLONEL DENNIS M. THOMPSON IS THE COMMANDER OF THE 296TH BRIGADE SUPPORT BATTALION, 3D STRYKER BRIGADE COMBAT TEAM, 2D INFANTRY DIVISION. PREVIOUSLY, HE WAS THE CHIEF OF THE LOGISTICS BRANCH OF THE STRYKER BRIGADE COORDINATION CELL AT FORT LEWIS, WASHINGTON. HE HAS A MASTER'S DEGREE IN GEOGRAPHY FROM PENNSYLVANIA STATE UNIVERSITY.

Transforming Army Oil Analysis

BY CAPTAIN DANIEL A. JENSEN

The Army Oil Analysis Program is restructuring and incorporating new technology to improve its usefulness as a maintenance diagnostic tool.

All of us are aware that the Army is constantly changing. The main catalyst for this change is the rapidly evolving technology exploding across our society today—technology that the Army must continue to exploit as it transforms to the Future Force. The Army Oil Analysis Program (AOAP) is not exempt from the changes being fostered by new technologies.

AOAP is a technology-based maintenance tool that provides diagnostic services to the Army and the other armed services worldwide. AOAP must capitalize on evolving technology so it can continue to enhance Army maintenance capabilities, reduce the burden on the soldier, and provide better diagnostics and prognostics in the future. Logisticians should be familiar with AOAP—how the program started, how it functions, and where Army Transformation will take it.

AOAP History

The Army has been a leader in instituting proactive maintenance by monitoring oil lubricants for indications of contaminants. Ironically, AOAP began in 1961 after several defective Army helicopter trans-

missions were detected by a Navy laboratory through oil analysis. The Army recognized that oil analysis could be a valuable maintenance diagnostic tool, so it opened its first oil analysis laboratory at Fort Rucker, Alabama, in September 1961 to provide support to its expanding aeronautical fleet. On the laboratory's first day of operation, a defective aircraft engine was identified through spectrometric wear metal analysis. That was the beginning of what was to become known as the Army Oil Analysis Program.

Between 1961 and 1975, oil analysis was used exclusively to monitor aeronautical components. Then, in early 1975, a significant change took place when AOAP's capabilities were expanded to include ground combat equipment. The program's expansion to ground equipment meant that AOAP also would need to perform analytical tests capable of determining lubricant condition. In 1977, tactical and wheeled vehicles were added to AOAP's workload, with other Army systems (such as locomotive, construction, materials-handling, support, and generator end item components) added in 1979.

AOAP Today

The Department of the Army's Deputy Chief of Staff, G-4, is the proponent for the oil analysis program, with the Army Materiel Command (AMC) G-3 acting as the designated responsible agent. The AMC G-3 delegates responsibility for plans, policies, and technical advice and assistance to the AMC Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama. The Army Tank-automotive and Armaments Command (TACOM), as commodity manager of petroleum systems, is responsible for funding and sustainment of AOAP-unique laboratory equipment.

Guidelines for wear-metal criteria are based on Department of Defense- and Joint Oil Analysis Program-approved formulas for testing spectrometric and physical properties (such as the presence of contaminants).

An oil sample is taken from a UH-60 Black Hawk helicopter for analysis.



The AOAP laboratories make recommendations to customer units based on the results of this testing. Currently, over 34 aeronautical systems and components and 472 ground systems and components are enrolled in AOAP. These enrolled systems are monitored by 25 AOAP laboratories (23 fixed facilities and 2 mobile labs) and joint laboratories worldwide.

The labs analyze over 1.1 million samples per year, recommending services and maintenance actions to be performed as needed. This translates into cost savings totaling millions of dollars annually in equipment maintenance, replacement of internal oil-wetted components, and labor and materials costs associated with the acquisition, transportation, handling, storage, and hazardous-materials disposal of waste byproducts (oil and filters).

AOAP Transformation

LOGSA currently is working on the initial tenets of an AOAP restructure and overhaul plan. The need for reshaping AOAP's program management was first highlighted in 1997, when the Chief of Staff of the Army directed the Army G-4 to review the aeronautical and nonaeronautical components enrolled in AOAP, streamline support to the field, and incorporate affordable new technology. Based on this directive, the LOGSA AOAP Program Manager (PM) developed a Restructure Concept Plan that was approved by the Army G-4 in February 2002.

The restructure plan proposes to reduce the maintenance burden on soldiers, reduce funding requirements, and improve AOAP as an analytical maintenance diagnostics tool by—

- Reducing the number of systems and components enrolled in the program.
- Reducing the frequency of sampling.
- Reducing the number of laboratories performing analyses.
- Leveraging technology in order to develop and install inline and onboard sensors and develop the potential of portable handheld screening devices in the future.
- Refining and using AOAP-generated data to identify design changes and improve sustainment actions in the emerging Future Logistics Enterprise. This would be accomplished by collecting, aggregating, and analyzing data obtained through the Global Combat Support System-Army, Logistics Modernization Program, and Logistics Integrated Data Base.

Collaborative Alliance

One of the key components in the AOAP restructure and overhaul plan is a collaborative alliance among LOGSA, TACOM, and the Tank-automotive and Armaments Research, Development, and Engineering

Center (TARDEC). This alliance will establish a tighter link to the petroleum and lubricants business area and the research and development community. The ultimate goal of the alliance is to develop and execute a plan that will eliminate the need for regularly scheduled oil sampling for analysis by AOAP.

To facilitate this process, TARDEC is working on an approved Army Science and Technology Objective (STO) effort to develop onboard oil condition monitoring sensors for engine lubricants, transmission oils, and hydraulic fluids. The STO will be broken down into sequential phases—

- Investigate fundamental technologies.
- Test selected technologies and investigate methods to integrate hardware and software.
- Select the most promising technologies and assemble prototypes for engine-stand testing.
- Select the best technical approach for initial prototype field testing.

TARDEC has evaluated several sensors to date and is pursuing additional sensors for testing potential technologies, including microwave, nanoelectromechanical, magnetic-electric induction, conductivity, dielectric constant, spectroscopy, and microviscometer. The AOAP PM has formed a collaborative alliance with the Army Aviation and Missile Command's engineering components, the Aviation and Missile Research, Development, and Engineering Center, and the Program Executive Office Aviation to improve oil-and-grease analysis support as one of several maintenance diagnostic tools for increasing readiness and flight safety.

AOAP continues to be a vital maintenance diagnostic tool. The program historically has increased operational readiness, enhanced flight safety, reduced catastrophic failures and maintenance efforts, and saved the Army millions of dollars annually through oil analysis monitoring. AOAP will provide an even greater service by optimizing its valued capabilities through restructuring and through capitalizing, leveraging, and exploiting evolving technology. **ALOG**

CAPTAIN DANIEL A. JENSEN IS AN EMERGENCY OPERATIONS CENTER SHIFT LEADER AT THE ARMY MATERIEL COMMAND LOGISTICS SUPPORT ACTIVITY (LOGSA) AT REDSTONE ARSENAL, ALABAMA. HE HAS A BACHELOR'S DEGREE IN AGRICULTURAL EDUCATION FROM THE UNIVERSITY OF MINNESOTA AND IS A GRADUATE OF THE QUARTERMASTER OFFICER BASIC AND ADVANCED COURSES.

THE AUTHOR THANKS DANIEL T. McELROY, A SUPERVISORY LOGISTICS MANAGEMENT SPECIALIST AT LOGSA, AND GEOFFREY B. EMBREY, THE ACTING DEPUTY TO THE COMMANDER OF LOGSA, FOR THEIR CONTRIBUTIONS TO THIS ARTICLE.

Moving the Army— Texas Style



Few Americans are aware of the volume of cargo that is shipped from ports located along the U.S. Gulf Coast from Brownsville, Texas, to Cape Sable, Florida. Some of these ports serve as major Department of Defense transportation nodes for overseas deployment of Army cargo. Two of these nodes are strategic ports located in Texas—the Port of Beaumont and the Port of Corpus Christi. (Designation as a strategic port means that the port management will give priority to military cargo during a contingency.) Almost 40 percent of the Army cargo deployed in support of Operation Iraqi Freedom flows through these two ports.

Although both the Port of Beaumont and the Port of Corpus Christi are container capable, petroleum and break-bulk products constitute most of the cargo shipped from those locations. The Port of Beaumont is home to one of the Military Surface Deployment and Distribution Command's (SDDC's) port-handling battalions, the 842d Transportation Battalion.



Cargo is prepared for loading onto the USNS Bob Hope for shipment to Iraq.



Cargo from the 4th Infantry Division arrives at the Port of Beaumont by rail for movement to Iraq.

A “Hands-On” Job

Part of the 597th Transportation Group in Sunny Point, North Carolina, the 842d Transportation Battalion is a relatively small activity composed of 7 military, 24 civilian, and 2 contractor personnel. The 842d acts as the single port manager for all Gulf Coast port military missions and routinely oversees missions in Pensacola, Florida; Mobile, Alabama; Gulfport, Mississippi; Lake Charles, Louisiana; and Houston, Texas. However, most of the action is centered in Beaumont and Corpus Christi.

The Commander of the 842d Transportation Battalion acts as single port manager and works closely with many organizations to meet the requirements of

this large area of responsibility. The Military Sealift Command, the Pilots Association, and the port authorities play major roles in vessel operations. The Federal Bureau of Investigation, the Coast Guard, and local police provide force protection. The Directorate of Logistics at Fort Hood, Texas, provides staffing for the Beaumont and Corpus Christi Port Support Activities, which provide onsite logistics support at each port. The 842d also works with each deploying unit’s liaison officer and hundreds of contract stevedores who handle the cargo, drive the vehicles, and secure them in the vessels’ cargo holds.

The single port manager at the strategic port of embarkation is the “go-to guy” for all things related to the cargo deployment phase of a mission, and he is ultimately accountable to each deploying unit for the success of the deployment operation. The 842d takes responsibility for cargo once it enters the port, leaving deploying soldiers free to concentrate on other tasks.

Predeployment Support

The 842d Transportation Battalion takes a proactive role in ensuring that units know what they are doing when they deploy. Before a deployment begins, the 842d visits the units to help them plan and prepare. They conduct seminars and training and participate in exercises and conferences. They consult with unit commanders, division transportation officers, unit movement officers, representatives of installation transportation offices, prospective liaison officers, and port operators in order to begin the process of matching unit requirements with port capabilities. The 842d Commander and selected team members also routinely brief in Unit Movement Officer Courses at Fort Hood and Fort Carson, Colorado.

The battalion has developed a briefing that focuses on the requirements a unit must meet when preparing its cargo for vessel transport and highlights lessons learned from previous missions. This briefing often stimulates a two-way information exchange, which serves as a foundation for planning and minimizes problems later in the mission. The 842d also has developed a Deployment Handbook, complete with visual aids, that is small enough to fit into a soldier’s cargo pocket and contains guidance on preparing cargo for movement to a port.

WARTRACE Units

The 842d has two WARTRACE units—the 1184th Transportation Terminal Battalion in Mobile, Alabama, and the 1192d Transportation Terminal Brigade, in New Orleans, Louisiana. (WARTRACE units are Reserve component units that, because of their special capabilities not found in the Active component, have been aligned with an Active Army unit.) Since many of the SDDC’s capabilities are provided by the Reserve components, these units are essential to the success of the 842d mission and are often called on for support. As a result, these reservists are fully integrated into the 842d’s mission at all levels and are



Cargo from III Corps at Fort Hood, Texas, arrives at the Port of Beaumont by truck.

An M1A1 Abrams tank is loaded onto the USNS Bob Hope using a ramp extension fabricated by P&O Ports of Texas.

an extension of its workforce. For example, the 1192d Transportation Terminal Brigade acted as single port manager in January 2003 at Corpus Christi when the 4th Infantry Division (Mechanized) deployed.

Iraqi Freedom Challenges

When the 842d Transportation Battalion supported the movement of III Corps and the 1st Cavalry Division to the U.S. Central Command area of operations, it faced some unusual challenges. One was to deploy units in force packages. (Deploying units in force packages means maintaining unit integrity throughout the move.) This procedure greatly reduces the amount of time the unit must spend in the assembly area in theater. However, it is a significant departure from the normal practice of maximizing all available square footage on the vessel by staging and calling forward cargo from the staging areas based on cargo type, such as 5-ton trucks or high-mobility, multipurpose, wheeled vehicles (HMMWVs). With force package integrity, each unit's cargo must be called forward and stowed together, requiring detailed coordination with rail and commercial truck carriers to ensure specific packages are moved on predesignated ships.

The 842d used a large, medium-speed, roll-on-roll-off ship (LMSR), the *USNS Bob Hope*, for the force package movement of the 1st Cavalry Division. Although using the ship did not reduce the planning and coordina-

tion required to make the force package movement work, the ample cargo space of the LMSR made the task easier.

Commercial Partners

Since the Port of Beaumont is a commercial port, all cargo at the port must be handled by union labor. Stevedores employed by P&O Ports of Texas provide labor and stevedoring services. Their innovative ramp extension not only speeds loading of equipment such as helicopters but also significantly reduces risk of damage.

The contract stevedores at both the Port of Beaumont and the Port of Corpus Christi demonstrate incredible flexibility in coping with changing mission requirements, which require actions such as moving commercial vessels to free wharf space for military vessels.

The Beaumont team has taken the slogan, "The Power of YES," as its de facto motto. This motto recognizes that attitude drives the result. With one of the most important jobs in the SDDC, the 842d Transportation Battalion is a linchpin in the logistic train. They will do whatever it takes to remove as much of the burden as possible from the warfighter and support U.S. forces in the fight.

ALOG

THE ARMY LOGISTICIAN STAFF THANKS DONALD J. JAPALUCCI, 842D TRANSPORTATION BATTALION PUBLIC AFFAIRS OFFICER, FOR PROVIDING INFORMATION AND PHOTOS FOR THIS ARTICLE.



The USNS Bob Hope awaits loading at the Port of Beaumont, Texas.

The Aviation Support Battalion— Workhorse of Army Aviation

BY MAJOR TIMOTHY J. WHALEN AND LIEUTENANT COLONEL RICHARD T. KNAPP

The authors chronicle the 603d Aviation Support Battalion's move across Iraq in support of the 3d Infantry Division's Aviation Brigade.

If you were asked to develop an organization that could support a heavy division's aviation brigade using published doctrine on combat operations, you might come up with something that resembles the current aviation support battalion. But suppose you were asked to develop an organization to support an aviation brigade as it operated across a distributed battlefield and conducted split-based operations with multiple forward area rearming and refueling points. This organization also would have to move the aviation brigade's ground assets (and its own) 300 miles across difficult terrain with little or no throughput of supplies. With these additional parameters, your design probably would change significantly.

This was the dilemma that confronted the 603d Aviation Support Battalion (ASB) when it was assigned to the Division Support Command (DISCOM) of the 3d Infantry Division (Mechanized) at Hunter Army Airfield, Georgia, for Operation Iraqi Freedom. Our logistics dilemma boiled down to this: How do you employ transformational tactics to support a division's aviation brigade when you have legacy equipment, organizations, and capabilities? Part of the solution resided in the division commander's guidance to "go light." The rest of the solution evolved through trying nondoctrineal solutions, embedding aviation intermediate maintenance (AVIM) and direct support capabilities in supported units, identifying key tasks that would ensure



Soldiers of the 603d Aviation Support Battalion receive a pre-convoy brief from their commander and first sergeant.

the aviation brigade's success, and making sure that leaders at every level knew not only what the key tasks were but also what being a key task meant.

The key tasks that were identified in the battalion commander's intent during the military decisionmaking process were—

- Get the 4th Brigade—the 3d Infantry Division's Aviation Brigade, located at Camp Udairi, Kuwait—to the fight. To do this, we would dedicate internal cargo assets for external support.
- Provide an uninterrupted flow of bulk class III (petroleum, oils, and lubricants). It was imperative that the 4th Brigade would never have to look for fuel. We had to have it where and when they needed it.
- Move ourselves using a tactical road march of battalion elements. This operation would be our highest



Two wreckers are used to recover a crashed AH-64D Apache Longbow helicopter.

risk. Leaders would have to conduct close supervision during all phases of the move.

The major constraint in the theater up to and beyond crossing the line of departure was ground transportation assets. When we compared that constraint to the key tasks (all of which demanded transportation assets), it was intuitively obvious that we had to be creative in addressing the applicable tactical logistics functions of fuel, move, fix, arm, and sustain.

Fuel

The ability of the 603d ASB to provide adequate resupply of bulk class III to the 4th Brigade was tested early in the fight. The DISCOM's planning process called for division- and corps-level fuel assets to be task-organized to the three brigade combat teams, including five to the 4th Brigade for movement into Iraq. Although those fuel assets eventually were returned to division and corps control, bulk class III was provided by supply point distribution for the majority of operations through the seizure of Baghdad International Airport.

In support of the 4th Brigade's mission to destroy Iraqi observation posts and intelligence-surveillance-reconnaissance units, the 603d ASB had fuel assets at Camp Udairi, from which the war was initiated, and at Objective Raiders, which was the 4th Brigade's attack position. From Raiders, the battalion's remaining tankers were further task-organized between the brigade's main body, which was prepared to move forward over 200 miles to Objective Rams in central Iraq, and "Force Module 1," which was poised to move to Jalibah Southeast Air Base, an intermediate staging base for support of the Tallil fight.

Our fuel estimates for the fight included fuel for the 1st Battalion, 3d Aviation Regiment's three six-ship AH-64D Apache Longbow helicopter companies and the UH-60A Black Hawk helicopters used by six forward support medical evacuation teams in support of the forward brigade combat teams (BCTs).

Although the Tallil fight was planned as a 24-hour operation, it actually took over 96 hours. Marine

Corps helicopters, which were collocated with Force Module 1 at Jalibah, also generated unscheduled bulk fuel requirements for the ASB. Providing adequate fuel was a critical task that was accomplished only through the willingness of soldiers and noncommissioned officers to work and drive in spite of exhaustion.

With the eventual destruction of the Iraqi 11th Infantry Division at Tallil, the 5,000-gallon corps fuel tankers that had been task-organized to the brigade combat teams returned to corps control "bone dry." The overage allowed in our estimates had been completely consumed. Our bulk petroleum requirements (22,500 gallons) from the line of departure (Camp Udairi) to Tallil were still significantly less than those of an armored or mechanized BCT. Because of our unique fuel transport capability, we were able to remain flexible on this fluid battlefield. This was the first example in the war of the critical need for this specialized fuel transportation. From reception, staging, onward movement, and integration through the end of 2003, the 603d ASB's petroleum and ammunition platoon dispensed over a million gallons of JP8 fuel, both retail and wholesale, to the 4th Brigade, corps aviation units, and joint, coalition, and other governmental agencies.

Move

Two of our three key tasks—getting the 4th Brigade to the fight and providing it an uninterrupted flow of bulk class III—demanded adequate truck support. These tasks were complicated because of insufficient external transportation assets available to the 603d. Unlike the division's maneuver BCTs, the 4th Brigade and 603d ASB are "come as you are" units and rapidly deploy with all home station equipment. This provided the 603d ASB a unique opportunity to use home station equipment that was not deploying from other division units to solve a known weakness. Some unique equipment assigned to the 603d's A Company (AVIM)—dolly set lifts—are usually affixed to company shop sets to provide portability. Typically, they are not suitable for cross-country movement, especially in a desert environment. Someone in the battalion suggested that we hand-receipt 30-foot M871A2 semitrailers and 5-ton M1088 medium tactical vehicle tractor trucks from the 703d Main Support Battalion at Fort Stewart, Georgia. Our shop sets would be securely mounted to the trailers, so very little square footage would be added to the unit's deploying equipment list.

This idea provided a more reliable means of moving our shop sets and was successful for three reasons.

First, our AVIM company was able to remain mobile and self-sufficient. Second, the solution did not tax an already overburdened division transportation resource. Third, and most importantly, it allowed the commander the flexibility to move critical shop and skill sets on the battlefield if needed.

Once deployed, our “move” dilemma grew. The 4th Brigade had only about 50 percent of the transportation assets it needed to be mobile. However, it was expected to move, in a single lift, 1½ ammunition basic loads; 5 days of supply of class I (subsistence) and bottled water for the ASB and an additional day’s worth for the 4th Brigade; 10 percent of the brigade’s organizational clothing and individual equipment; and more.

Again, the 703d Main Support Battalion had an untapped resource—a second set of trailers (minus prime movers) from Army pre-positioned stocks (APS). The ASB had M1088 tractor trucks available since we had wisely decided to leave an AVIM phase maintenance capability at Camp Udairi. (We also left half the authorized stockage list [ASL] and the Standard Army Retail Supply System [SARSS] terminal so connectivity to the division’s SARSS–2AD terminal could be maintained while the ASB moved.) This thrown-together lift was used to move the 4th Brigade’s aviation unit maintenance (AVUM) equipment, prescribed load list, and bench stock (low-cost consumable items) and to meet the ASB’s internal transportation needs.

Making the AVUM companies mobile was critical. Based on our mission and the commander’s intent, we concluded that aviation maintenance would be performed at the unit level with only backup capability from the ASB required until facilities and the most precious resource—time—were available. Tractors and trailers were imbedded in the 4th Brigade’s Headquarters and Headquarters Company; the 1st Battalion, 3d Aviation Regiment (1–3 Attack Battalion); and the 1st Battalion, 3d Aviation Regiment (2–3 General Support Aviation Battalion). The remaining shortfall in lift and requirements was met by assuming risk and making tough decisions across the brigade and ASB—we simply could not bring everything! Duplicate materials-handling equipment, cranes, and other items were left behind at Camp Udairi.

Fix

In addition to the risk associated with normal direct support ground and AVIM maintenance, we identified vehicle recovery as a high-risk task during the 4th Brigade’s ground movement. Our assessment proved to be accurate. Most recoveries occurred during the brigade’s move across western Iraq. All brigade recovery assets were under centralized control although they remained within their battalion serials. The bri-

gade moved in two separate convoys with virtually equivalent capabilities: ground contact maintenance, wrecker support, and, most importantly, command and control. Unit and direct support recovery teams proved to be the brigade heroes by exercising battle damage assessment and repair techniques and nondoctrinal recovery procedures seldom used in garrison. The plan emphasized self-recovery, with tow bars and wrecker recovery as the secondary means. This plan gave recovery crews freedom of maneuver and reserved critical assets for when they were needed most. The biggest dilemmas proved to be vehicles mired in sand or mud and trailer tire failures (and we had no spares). Many of the tire failures could be attributed to overloading, no doubt due to limited transportation assets. Central tire-inflation systems worked as advertised.

During the brigade’s move from Attack Position Raiders in Kuwait to closure on Objective Lions (Baghdad International Airport), ASB and aviation brigade wrecker crews executed over 60 recovery missions. Four days and 220 miles after departing, the 4th Brigade and the 603d ASB arrived at their destination with nearly 100 percent of their equipment and personnel. The only exception was one M105 trailer that likely was pilfered from the battlefield before the successful recovery of the truck to which it was attached.

The positioning of the ASB’s command and control throughout the convoys provided another unique challenge. Before crossing the line of departure, we deliberated on where to position key leaders to facilitate command and control of the large serials that were part of the 4th Brigade’s ground vehicle tactical road march. Our ultimate decision was to place the ASB executive officer and command sergeant major forward, company commanders and first sergeants as serial commanders, and the ASB commander and support operations officer in the trail party with the recovery assets. The number one responsibility of the battalion commander and support operations officer was to leave no soldier and no piece of equipment behind.

Because of the positioning of the ASB leaders, all 4th Brigade equipment and personnel arrived safely at Baghdad International Airport. This fact reinforces our contention that we should include leader positioning on the battlefield as part of the deliberate decisionmaking process. If you are a leader, identify the high-risk portion of any mission, confirm that putting yourself there will have the optimal impact on the situation, and place yourself there—even if that means leading from the back.

Arm

Before hostilities began, the 4th Brigade was tasked with establishing a theater-level ammunition

holding area at Camp Udairi. Although the mission was executed to standard, it was a drain on the battalion S-3 and support operations sections because the manpower was not available in the brigade or the 603d ASB to establish and manage an ammunition holding area of that size around the clock. To solve this dilemma, an attachment of armament personnel from the ASB fortified the Aviation Attack Battalion's armament section. This provided considerable flexibility and enabled the Aviation Attack Battalion to perform 24-hour operations and still conduct preventive and unscheduled maintenance of the armament systems. Forward area rearm and refuel personnel from the 4th Brigade and 603d ASB were asked to provide combat lifesaving assistance on two occasions when medical personnel could not keep pace with patient throughput at an air ambulance exchange point.

Sustain

Providing class IX (repair parts and components) support also presented a challenge. How do you support both a moving brigade (conducting split-based operations) and a stationary maintenance activity (performing phase maintenance at Camp Udairi)? After considerable thought about what would be needed when and where, we decided to split the ASL. Our earlier decision to leave our SARSS terminal at Camp Udairi so we could maintain a link with the division's SARSS-2AD terminal prevented a 5- to 10-day lapse in passing requisitions while we were moving and provided responsiveness to the ASB phase maintenance teams.

However, it became difficult to get the parts that were on our ASL or theater ASL to the supported units. Theater distribution was immature, so we used internal lift from the theater distribution center to reach forward units and ASB locations until we arrived at Baghdad International Airport. The ASB AVIM company commander put together armed convoys to push critical repair and spare parts forward. This brought to light another equipment problem. The ASB had more crew-served weapons than ring mounts on its modification table of organization and equipment (MTOE). Also, the ring mounts were for the family of medium tactical vehicles trucks. The ASB required mounts for crew-served or squad automatic weapons on many high-mobility, multipurpose, wheeled vehicles to provide flexible force protection options for the numerous convoys in a supply-point-distribution-centric theater. The ASB had to find alternative ways to provide internal security for convoy operations.

What Have We Learned?

Training. Light discipline at night, such as turning

off all internal lights and using light filters on flashlights, is something we rarely do well during training, although we expend a lot of effort trying. However, our soldiers realized the importance of this discipline and executed it flawlessly when it mattered. (Some things don't need a lot of training; they are instinctive to most soldiers.) We must evaluate training schedules in the rear, cut the easy-to-train, low-payoff events, and focus instead on the more challenging tasks. This is the best endorsement for the phrase, "train as you fight." (To this end, the battalion recently completed an aggressive training plan. The training included a convoy simulation exercise, simulated call-for-fire training, medical evacuation requests, preparation of a landing zone, use of the Engagement Skills Trainer [a simulation that offers scenarios such as ambush, search and destroy, and military operations on urbanized terrain], and a capstone exercise convoy live fire.)

Communications. Everywhere we stopped, our communications sergeant spent a lot of time setting up the single-channel antijam man-portable (SCAMP) terminal and attempting to establish effective communications, only to learn later that the host network SCAMP terminal was not set up. Before crossing the line of departure, we spent considerable time training operators across the DISCOM on operating the SCAMP. That time turned out to be wasted. Communication, particularly the ability to crosstalk between support battalions, is important. The capability for units to communicate is and must remain a top priority. We must have reliable, long-range, over-the-horizon communications systems in support units.

Medical assets. The ASB needs medical assets. Forcing the ASB to depend on medical support from the units it supports—units that may or may not be collocated with it—is not a viable solution. The division provided one attached field ambulance until battlefield losses of ambulances occurred elsewhere. The units we supported were manned to provide medical treatment for their own personnel and had difficulty supporting an additional 530 soldiers from the ASB.

Rising to the occasion. In many cases, soldiers who were not stellar performers in the rear not only rose to the challenge but also impressed us every day. We must not disregard soldiers in the rear and assign them to the "rear detachment" based on performance alone. We concluded that a vast majority of soldiers, when placed in an environment in which they are expected to perform missions directly associated with the reason they joined the Army, rose to the challenge and then some. This occurred over and over again in Kuwait and on the Iraqi battlefield. It is worth the risk to carefully evaluate soldiers and give them opportunities to make a difference and quite possibly change the course of their careers and lives.

This improvised gun truck was used for convoy security.

Operating in a split-based environment. This is very difficult for a DISCOM ASB and tests its ability to remain flexible and creative in maintaining aircraft and ground equipment in more than one area of operations. Although its MTOE does not support this concept, the ASB worked through it. In October 2002, the battalion supported an aviation task force at the National Training Center at Fort Irwin, California; a rotation in Kuwait; and an intensive flying-hour program at Hunter Army Airfield and Fort Stewart. The biggest problem for the battalion to overcome was configuring the unique capabilities of the 603d ASB “back shops” and the distribution of personnel with technical military occupational specialties in the aviation maintenance field. Then we had to scrutinize the management of repair and spare parts in three distinct regions. We were successful because the entire battalion chain of command was involved in the military decisionmaking process and we used a clearly defined “troop-to-task” approach. The correct placement of leaders and soldiers in all areas proved invaluable.

APS and the ASB. With the exception of the 3d Infantry Division’s cavalry squadron, the 603d ASB and the 4th Brigade are the only units in the division that do not draw equipment from APS. With a partial APS issue (for example, command and control vehicles, fuel tankers, cargo trucks and trailers, and ground support equipment), the ASB and the 4th Brigade could establish a more timely initial operating capability. The theater should be prepared to support a partial APS issue for common equipment across the ASB. However, unique ASB AVIM capabilities and the battalion’s entire ASL should deploy from home station.

Keeping soldiers at all levels informed. This is the very least we can do for our soldiers. On a fluid battlefield, moving in large serials within convoys in enemy territory over extended distances increases the possibility of soldiers becoming separated from main units. Publishing fragmentary orders to a base order is optimal throughout an operation. However, other means of keeping soldiers informed include thorough movement briefs, daily battle update briefings, and commander’s huddles. Leaders should take advantage of every opportunity to brief soldiers on the current situation. A soldier should have situational awareness from the receipt of an order from higher headquarters through the end of the mission.

ASB versus forward support battalion (FSB). The ASB was tasked to perform functions similar to those of an FSB. The ASB’s organic transportation assets are designed to move only 50 percent of its unit equipment in one lift, the battalion has only three ammunition spe-



cialists to support forward area rearming and refueling point operations, and no medical assets or personnel are assigned to the battalion. We were required to submit formal requests for augmentation by other battalions in the DISCOM to better posture ourselves and our customers throughout the battlespace. Doctrine calls for many things to happen as a result of corps augmentation or throughput. In an immature theater such as ours, there may not be enough augmentation to go around. Couple that with the newness of the ASB and the confusion with FSB capabilities, and the ASB’s full potential is not realized. We need to reexamine the ASB’s structure against the contemporary operational environment and emerging doctrine and submit recommended changes that support adding mobility and fuel assets, an ammunition transfer point section, and medical support capability to the ASB’s table of organization and equipment.

The 603d ASB is known as the “Workhorse.” It was the tenacity reflected in this nickname that enabled the 603d ASB to tailor its current equipment, organizations, and capabilities to support the 4th Brigade successfully as it moved across Iraq. Enhancing the structure of future ASBs will allow this workhorse of Army aviation to continue to excel on any battlefield.

ALOG

MAJOR TIMOTHY J. WHALEN CURRENTLY SERVES IN THE 1ST INFANTRY DIVISION (MECHANIZED) IN GERMANY. HE HAS A BACHELOR’S DEGREE FROM THE U.S. MILITARY ACADEMY AND A MASTER’S DEGREE FROM GEORGIA STATE UNIVERSITY. HE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

LIEUTENANT COLONEL RICHARD T. KNAPP COMMANDS THE 603D AVIATION SUPPORT BATTALION, 3D INFANTRY DIVISION (MECHANIZED), AT HUNTER ARMY AIRFIELD, GEORGIA. HE HAS A BACHELOR’S DEGREE IN VOCATIONAL ARTS EDUCATION FROM NORTHERN ILLINOIS UNIVERSITY AND IS A GRADUATE OF THE ARMOR OFFICER BASIC COURSE, FLIGHT SCHOOL, THE AVIATION OFFICER ADVANCED COURSE, AND THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

A Corps Support Battalion's Experience in Operation Iraqi Freedom

BY LIEUTENANT COLONEL ANDREW W. BOWES AND MAJOR KIMBERLY J. DAUB

Traditionally, the 87th Corps Support Battalion (CSB) is aligned under the 24th Corps Support Group (CSG) (Forward) in direct support of the 3d Infantry Division (Mechanized) at Fort Stewart, Georgia. Its mission is to provide backup support to the Division Support Command and direct

support (DS) to nondivisional units assigned to Fort Stewart. The 87th CSB's peacetime configuration includes the Headquarters and Headquarters Detachment (HHD), 94th Maintenance Company (General Support [GS]), 632d Maintenance Company (DS), 226th Quartermaster Company (DS), 396th Trans-



At the Euphrates River, a soldier monitors the water-pumping station for FLB Dogwood.

portation Company (Palletized Load System [PLS]), 233d Heavy Equipment Transporter Platoon, and 240th Forward Surgical Team.

When the 87th CSB was added to Force Package 1 to support the 3d Infantry Division in Operation Iraqi Freedom, we knew that the battalion's task organization would have to change. In fact, our battalion underwent five major changes during the first 3 weeks of combat. These changes reflected the 24th CSG's concept for supporting the battalion's rapid movement to Baghdad and ensuring continuous customer support. We experienced firsthand the command and control challenges of "plug and play" logistics.

This article chronicles the 87th CSB's deployment and presents lessons learned while providing support to the 3d Infantry Division.



Setting the Stage

Members of the 24th CSG headquarters and 13th CSB headquarters (from Fort Benning, Georgia, and assigned to the 24th CSG) went to Kuwait in January 2003 to begin planning and to set the conditions for the CSG's reception, staging, onward movement, and integration. Since the 87th CSB headquarters and the 226th Quartermaster Company had returned recently from a 6-month deployment to Djibouti, the battalion was separated from the 3d Infantry Division for deployment and was placed late in the Force Package 1 time-phased force deployment data. This caused some problems for the 87th CSB's deployment.

To meet operational timelines, the battalion began to fly "space available" to Kuwait. The first unit to leave was the 396th Transportation Company, which deployed on five different flights. All units, except the HHD, would draw prepositioned equipment in Kuwait, and the shortfalls and unit supplies would be sent by ship. However, it soon became apparent that the ships would not arrive in Charleston, South Carolina, to be loaded before the battalion's personnel departed for Kuwait. This meant that the HHD's equipment would get to Kuwait much later than its personnel did. To resolve this issue, the



A rough-terrain container handler is used to offload containers of bottled water from railcars at Al Iskandariyah, Iraq.

HHD sent a significant amount of its tactical operations center equipment in containers on space-available flights and then drew enough vehicles from prepositioned equipment to become mission capable.

The 396th Transportation Company, the HHD, the 632d Maintenance Company, and the 226th Quartermaster Company all arrived in Kuwait by 7 March. The ships carrying the unit's supplies did not leave Charleston until 10 March. Because of an approximate 3-week sailing time, units going into combat were still missing as much as 20 percent of their life support, supplies, and repair parts. In the meantime, the advance party hit the ground running, trying to catch up with the 24th CSG, which was already at Camp New York in Kuwait, and develop a battalion concept of support that would sustain the CSG's overall concept. The basic concept included establishing forward logistics nodes created by echeloning the CSBs. The forward CSB had critical bulk petroleum, oils, and lubricants (POL); certain types of ammunition; water; and rations. To help set up the nodes quickly, CSBs formed corps-level forward logistics elements (FLEs) and integrated them into the 3d Infantry Division 2d Brigade Combat Team's (BCT's) maneuver.

To set the stage for the move across the line of departure, the battalion was given a new task organization that detached the 396th Transportation Company and attached the 157th Quartermaster Company (Field Services) and the 59th Quartermaster Company (POL) (GS). At the same time, the battalion assembled its FLE package that would go with the 2d BCT to facilitate the rapid buildup of Forward Logistics Base (FLB) Bushmaster.

Fuel Support

The center of gravity for the entire support mission during the attack on Iraq was fuel support. To support the mission, the battalion was tasked to develop a 1.2-million-gallon fuel bag farm at Objective Rams (which later would become FLB Bushmaster), near An Najaf, just south of the Karbala Gap. To do this, the battalion developed a FLE that was embedded with the 2d BCT. The FLE consisted of 27 vehicles and 54 people and had ten 5,000-gallon fuel tankers; a 10,000-pound forklift; a D7 bulldozer; four stake-and-platform trailers; a semitrailer-mounted fabric tank; a gun truck; a small extension node (SEN) team; a heavy, expanded mobility tactical truck wrecker; a contact truck; and three command and control vehicles.

The FLE moved out of Camp New York on 12 March to collocate with the 26th Forward Support Battalion (FSB). On 19 March, it moved with the 2d BCT to Attack Position Appling in preparation for crossing into Iraq on 21 March. The FLE would supply the corps tactical command post, corps signal unit, and division main command post with critical fuel along the route and establish a 400,000-gallon fuel system supply point (FSSP) within 12 hours of reaching Objective Rams.

The FLE, the last element in the 2d BCT's column, took the southernmost route, which was mostly unpaved, extremely rough, and covered with "moon dust." It took us nearly 72 hours of nonstop traveling to reach Objective Rams, a distance of approximately 375 miles. During the trip, we had to abandon three 5-ton tractors, two 5,000-gallon tankers, and one stake-and-platform trailer because of maintenance problems and a lack of wrecker support.

The FLE arrived at Objective Rams on 24 March, just after the 2d BCT had declared it secure although they were still mopping up pockets of resistance. We picked up a security element from the 2d BCT and quickly began to establish the FSSP despite high winds and sandstorms. Positioning berm liners for the fuel bags became a challenge when the wind caught a liner and tossed soldiers 12 feet into the air. (Berm liners are required for collapsible fuel tanks to protect the tank from damage and the environment from fuel leaks.)

As the visibility increased and the sandstorms died down, it became apparent that the area was not truly secure. There were numerous small hamlets in close range, and we encountered many suspicious vehicles throughout the day. We were nearly finished setting up the FSSP when we learned that the security element was pulling out in the late afternoon. After reassessing our poor security posture, we decided to dismantle the FSSP and find a new location. We were able to pick up a Bradley fighting vehicle platoon to provide



A 1.3-million-gallon fuel system supply point is set up at Objective Rams.

security, and the 87th CSB-led convoy of over 500 wheeled vehicles moved to the new site later that evening. At first light on 25 March, we began to set up the new FSSP, and it was ready to receive fuel within 4 hours. That night, 60 tankers arrived at the FLE carrying 288,000 gallons of fuel.

FLB Bushmaster

The FLE spent most of the next day escorting companies into the new area of operations. In the afternoon, the sky became dark red and the "mother of all sandstorms" began to kick up. Adding to the bad visibility was a dense black cloud, which was created when the Iraqis set oil pits on fire outside Baghdad. Around 1600, the sky turned black as pitch as we tried to get march units of 25 or more vehicles into the battalion area. By early evening, it was literally raining mud.

At FLB Bushmaster, the battalion's 24th Ordnance Company was tasked to establish an ammunition supply point (ASP), a 1.2-million-gallon fuel bag farm, and a water point that would supply 100,000 gallons of drinking water. The battalion also had to provide DS maintenance, recovery support, and DS supply support to all corps units in the area.

Once the entire battalion arrived, we began a full-court press to establish the fuel bag farm and a water point to purify water. Within 36 hours, the fuel bag farm was fully operational. It supported not only the 3d Infantry Division, but also the 101st Airborne Division (Air Assault) while it established a forward area refuel point. This fuel bag farm played a critical role during the destruction of the Iraqi Medina Division and the fight through the Karbala Gap. Although a GS POL company normally is not associated with a CSB forward, the 59th Quartermaster Company was vital to

building up the fuel needed to continue the attack. Its position, forward of the division rear boundary, shortened lines of communication to the divisions and made it possible for the battalion to provide fuel rapidly and continuously in the quantity needed to support the corps main attack.

Water production was the second most important mission of the 87th CSB at FLB Bushmaster. All units had crossed the line of departure with a 5-day supply of rations and water, and we were now on day 5. With help from our local civil affairs detachment, we found a water site close to our area. The site was a cement plant with an aquifer that could support our mission without affecting the local farmers. Within 24 hours, we had drinkable water. We used the 3,000-gallon reverse osmosis water purification units (ROWPUs) from the 226th Quartermaster Company and had operational control of two arid augmentation teams—the 205th Quartermaster Detachment, which had two 3,000-gallon ROWPUs, and a platoon from the 512th Quartermaster Company, which had a 200,000-gallon water storage capability. These teams were excellent additions to the DS company, and they were critical to providing “just-in-time” water to the 3d Infantry Division and our corps customers.

FLB Dogwood

Eventually, as the attack progressed through the Karbala Gap and on toward Baghdad, the battalion prepared to move again and the 7th CSG (Rear) (a 3d Corps Support Command unit from Bamberg, Germany) assumed command and control of the 59th Quartermaster Company. As the 87th CSB turned over the 1.2-million-gallon fuel bag farm and the ASP to the 7th CSG, a FLE was formed to start the process of relocating the battalion again to support forward. The FLE initially advanced north of the escarpment, which was just south of the Karbala Gap, with thirty-three 5,000-gallon fuel tankers and two PLS trucks of ammunition and joined the 26th FSB. We used seven tankers of fuel to top off the 26th FSB’s DS assets, and the remaining tankers and PLS trucks then went north with the 2d BCT to Objective Chargers.

Twenty-four hours later, we reached the division logistics release point (LRP) and refueled all of the 1st and 2d BCTs’ vehicles and supplied them with ammunition. At this point, another battalion convoy with an additional 30 tankers and 17 PLS truckloads of ammunition arrived to resupply the brigades as the 1st and 2d BCTs fought their way across the Euphrates River into Baghdad. We established Convoy Support Center Freightliner at the LRP. Early the next day, the FLE moved from the LRP and arrived 12 hours later at FLB Dogwood, which was established on the site of an abandoned British Petroleum refinery.

Once at FLB Dogwood, it was critical to set up the ROWPUs, the ASP, a 600,000-gallon fuel bag farm, and a DS/GS class I (subsistence) point quickly. Water became especially critical since the division had run out of bulk water. We found a pipe that carried water into the refinery from the Euphrates River, which was about 2 miles away. The 512th Quartermaster Company and the 632d Maintenance Company adapted a fitting to tap into the pipe with our hoses.

After pumping approximately 30,000 gallons of water, the electrical power failed and the pump shut down. We assembled a great team of 632d Maintenance Company mechanics and a civil affairs team to work with the locals. They improvised a way to hook



Quick reaction force soldiers perform maintenance at FLB Dogwood.

up a captured Iraqi generator and repaired the pump, which drew ample water from the river for the 3d Infantry Division’s consumption. One ROWPU was set up at the river, and we transported the purified water from that site in semitrailer-mounted fabric tanks. The other two ROWPUs were located at the main water point. We used a 50,000-gallon bag for raw water storage and had 200,000 gallons of purified water on hand for consumption.

Meanwhile, a platoon from the 59th Quartermaster Company quickly set up the FSSP. The FSSP was able to receive fuel in approximately 8 hours, and the entire 600,000-gallon system was set up within 24 hours. We used the 348th and 515th Transportation Companies to line-haul bulk fuel from the bag farm at FLB Bushmaster to FLB Dogwood.

With the rapid success in Baghdad, the ASP’s mission quickly changed from that of a resupply point for



Oil fires, combined with a dust storm, turn the skies orange around Baghdad.

combat operations to an ammunition turn-in point for three divisions. Overnight, we went from being a divisional ASP to a corps storage area with 5,000 tons of U.S. ammunition. We also stored Iraqi ammunition captured by the 3d Infantry Division's 1st Battalion, 15th Infantry, from an enemy ASP in downtown Baghdad. This 2-day mission began on the second day U.S. forces were in Baghdad. While surrounded by ongoing combat operations, the recovery team hand-loaded and delivered to the Free Iraqi Fighters over 3.5 million 7.62-millimeter machinegun rounds, 200,000 .50-caliber machinegun rounds, and 1,000 AK-47 assault rifles. When the team returned, we sent another team out immediately to recover more ammunition. They came back with a total of 300 tons of enemy ammunition on captured flatbed trailers, dump trucks, and 5-ton trucks. Seizing these assets freed up the 1-15 Infantry Battalion, which had been guarding the site, to continue its mission in Baghdad and provided critical supplies for use in training the new Iraq Army once it was formed.

Next, we went from operating a DS class I point for all nondivisional customers in the area to operating a DS/GS class I point. To handle the GS mission, we combined the class I sections of the 226th Quartermaster Company and the 730th Quartermaster Company (DS), which provided 20 people to complete the mission. Luckily, we were able to get two 40-ton rough-terrain container handlers from the attached 372d Cargo Transfer Company to help handle the con-

tainers that arrived. Issuing class I only to the 3d Infantry Division was not too difficult, but when we had to issue rations to the 101st Airborne Division, the 4th Infantry Division (Mechanized), and the 82d Airborne Division, it became big business involving a huge number of containers.

The biggest problem we encountered with issuing the class I was the lack of in-transit visibility of the theater trucks that were bringing rations from the Public Warehousing Company in Kuwait. We were living from hand to mouth, so convoys that were delayed or came in with less class I than expected created serious problems. An added challenge was receiving 20- and 40-foot containers with mixed loads and no packing lists. We received 20 to 30 trucks a night, each carrying either two 20-foot containers or one 40-foot container. We had to inventory bottled water; meals, ready to eat; and unitized group rations quickly to ensure we had enough for the next day.

Fresh fruits and vegetables became an additional mission when the ration cycle changed. "Reefer" (refrigerated) vans carrying fresh produce were sent from Kuwait with no packing lists, so we had to offload and inventory every shipment in the sweltering heat. The vans were not marked for specific divisions, so we first had to determine what we had and then make equitable distributions. The vans had to be completely offloaded and then reloaded because the various types of fruits and vegetables were not distributed evenly in each van. Sometimes the van refrigeration units did not work, and

we had no parts on hand to fix them. This presented a dilemma because fresh fruits and vegetables will spoil quickly without refrigeration. Our mechanics came up with a number of creative ways to repair the vans' refrigeration units to keep the mission going.

Once Baghdad was secure, units began to use FLB Dogwood as a staging base before going north. We gained corps customers who spent anywhere from one to six nights in our area of responsibility until they moved forward. Our customer base expanded from 8,500 to 16,000 in less than a week. Persistent communication problems made it difficult to alert the 19th Theater Materiel Management Center of this huge increase in headcount so enough class I could be pushed forward.

Support Issues

Throughout the operation, poor communication support was a constant challenge for the 87th CSB. The corps signal plan did not support the rapid forward move of combat service support forces. From the minute we reached Camp New York, we had communication problems. Our SEN team was issued a Tactical Local Area Network Encryptor (TACLANE) a day before being attached to the 87th CSB, so they had no training on the system and very little support from their battalion. We constantly had to request technical data for the team so they would know which node center to use as we moved forward. A coordinated plan for node centers was not readily available, and we were not informed when the node centers were about to relocate. Only after our systems went down did we find that our supporting node center had moved. In FLB Bushmaster, we were only operational for 1 day.

This problem also affected our connectivity to the Standard Army Maintenance System (SAMS) and the Standard Army Retail Supply System (SARSS). When we were able to connect through the Nonsecure Internet Protocol Router Network (NIPRNET), the lines did not have enough bandwidth or speed to support our systems. To work around this problem, we used the 24th CSG Headquarters' Secret Internet Protocol Router Network (SIPRNET) and had batches emailed to us. This was a long and tedious process that seriously affected our ability to complete our mission and crippled the repair parts requisition process.

Another problem during this operation was the lack of standard in-transit visibility. The battalion was issued two Movement Tracking Systems (MTSs) before crossing the Iraqi border, but neither was complete, no training was provided on them, and most of the system installation was left up to the unit. Our tracking station was fielded without a power cable, and the fielding team told us that we would receive it in "7 to 8 weeks." The system installed in the battalion commander's

vehicle had "the blue screen of death" less than 1 week after fielding, and we had no viable technical support. While at the escarpment south of the Karbala Gap, units were issued a Defense Transportation Reporting and Control System (DTRACS). The Joint Deployment Logistics Model (JDLM) can be used to access both the MTS and DTRACS if the software is loaded on a computer that is connected to the Internet, but we did not have access to the Internet. These systems would be great assets for forecasting when theater tankers were bringing fuel to the fuel bag farms or when a convoy of rations was arriving at the class I warehouse. The transportation company commanders used the systems installed in their trucks to get status reports and track their assets. At the corps level, the staffs had better visibility than the troops on the ground who needed the information.

We were directed to place radio frequency identification tags on all of our fuel tankers, even though there were no interrogators in our area to read them and we could not get a readout on the systems we did have. Overall, there appeared to be no coordinated plan in place to ensure that we had the tools we needed at the battalion level to make these in-transit visibility systems work.

During Operation Iraqi Freedom, the 87th CSB was usually farther north than the 3d Infantry Division's 703d Main Support Battalion. The CSB completed all missions it was asked to do, regardless of what doctrine states. With the rapid push to Baghdad, our mission changed often, as did the CSB's task organization. However, we continued to provide support. Despite communication problems and a lack of equipment, we put ourselves out front to make sure our customers got the support they needed.

ALOG

LIEUTENANT COLONEL ANDREW W. BOWES IS THE COMMANDER OF THE 87TH CORPS SUPPORT BATTALION AT FORT STEWART, GEORGIA. HE HAS A BACHELOR'S DEGREE IN EDUCATION FROM WESTERN MARYLAND COLLEGE AND IS A GRADUATE OF THE TRANSPORTATION OFFICER BASIC AND ADVANCED COURSES, THE ARMY COMMAND AND GENERAL STAFF COLLEGE, THE ARMED FORCES STAFF COLLEGE, AND JOINT PROFESSIONAL MILITARY EDUCATION PHASE II.

MAJOR KIMBERLY J. DAUB IS THE EXECUTIVE OFFICER OF THE 87TH CORPS SUPPORT BATTALION AT FORT STEWART, GEORGIA. SHE SERVED AS THE SUPPORT OPERATIONS OFFICER DURING HER DEPLOYMENT TO IRAQ. SHE HAS A BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION FROM BUCKNELL UNIVERSITY AND A MASTER'S DEGREE IN LOGISTICS FROM THE NAVAL POSTGRADUATE SCHOOL. SHE IS A GRADUATE OF THE ORDNANCE OFFICER BASIC AND ADVANCED COURSES AND THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

Supporting the Fight: The FSB

BY MAJOR STEVEN M. LEONARD

Field Manual (FM) 3-0, Operations, published in June 2001, documented the Army's shift in its fundamental warfighting doctrine to encompass an evolving operational environment that reflects contemporary threats. The traditional battlefield framework was expanded to recognize the nonlinear, noncontiguous operations that have characterized conflict since Operation Desert Storm. Conducting combat operations in this environment would test the mettle of any armed force, and supporting operations in the same environment would stress the limits of even the finest logistics system in the world.

From the onset of Operation Iraqi Freedom, coalition logisticians surged sustainment across Iraq, straining to meet mounting requirements as combat forces

on Baghdad with little resistance, while light infantry forces from the 82d Airborne Division secured key routes for follow-on forces. The 101st Airborne Division (Air Assault), led by its 2d Brigade Combat Team (BCT)—the “Strike Brigade”—leapfrogged across 1,200 kilometers of Iraqi desert while fighting a succession of urban battles that cleared the major cities for future stability and support operations.

The 526th Forward Support Battalion (FSB), whose slogan is “Best by Performance,” was tasked with supporting the Strike Brigade during this operation. Support missions came early in the deployment—before most of the battalion's equipment arrived—and continued at a rate unparalleled in the history of combat logistics.

Preparing for War

As the 101st Airborne Division began preparing to deploy in January 2003, 526th FSB began its own effort to prepare for a war that most certainly would assume an urban flavor. The FSB support operations officer (SPO) presented a professional development class on supporting urban operations, drawing on the lessons of Russian forces in Afghanistan and Chechnya and focusing on the unique requirements of light infantry forces engaged in sustained urban combat.

Planners from the Support Operations Office and maintenance company designed special repair parts packages to support the anticipated increase in the use of small arms, crew-served weapons, and missile systems associated with urban operations. Forecasted increases in class IX (repair parts) customer wait times drove the decision to configure battle-damage assessment and repair kits as well. Ultimately, these efforts would sustain the readiness of critical combat platforms as the Strike Brigade proceeded across more than 1,200 kilometers of battered Iraqi highways.

After completing its deployment to Kuwait in early March, the BCT consolidated operations at Camp New



The FSB headquarters in Mosul stands on the grounds of the former Iraqi V Corps headquarters.

pushed forward at an unprecedented pace. Armored columns from the 3d Infantry Division (Mechanized) and the I Marine Expeditionary Force (MEF) advanced



Equipment from the 101st Airborne Division is staged at the logistics release point at tactical assembly area Carla before moving into attack positions on D-day.



FSB soldiers display weapons and ammunition captured during the battle at Karbala.

York and began final planning and preparation for combat. On 18 March, the FSB forward logistics element (FLE) moved forward as part of Task Force (TF) Sinclair to tactical assembly area (TAA) Carla on the western Iraqi border. There, the FLE established a logistics release point to support the division as it moved into enemy territory. The FLE provided critical sustainment to forces that were staging in attack positions before crossing through breach lanes along the border.

Within 48 hours, over 2,700 vehicles had processed through the logistics release point en route to their attack positions. During that time, the FLE issued more than 27,000 gallons of fuel, nearly 5,000 cases of meals, ready to eat, and 5,700 cases of bottled water to replenish unit basic loads, repaired 127 vehicles, and provided level-I medical treatment for forces passing

through the TAA. More importantly, the efforts of the FLE were essential to ensuring that the division maximized the combat power it projected on D-day.

On 20 March, the first day of coalition combat operations, the FLE reintegrated with the FSB and prepared to move into Iraq. Within a week, the BCT began moving from Camp New York to TAA Strike near An Najef, Iraq.

Combat Operations

On arrival in An Najef, the Strike Brigade assumed the division main effort—a role the BCT would maintain even after President Bush announced the cessation of offensive operations on 1 May. On 29 March, the 2d BCT initiated Operation Eagle Strike II in the An Najef area with a bridge seizure north of the city and then proceeded to sweep south to clear the city of



enemy forces. While supporting operations from the brigade support area (BSA) at TAA Strike, which was 20 kilometers west of the city, the FSB positioned a medical-heavy FLE on the northern edge of An Najef. This FLE augmented the capabilities of the brigade main effort battalion aid station (BAS) and reduced ground evacuation time for casualties.

At the BSA, a lack of external transportation support forced the FSB to download all the available light medium tactical vehicles in the battalion to meet the mounting truck requirements of the brigade. Because the FSB was faced with a rapidly evolving operational situation along already extended lines of communication, “outside-the-box” solutions soon became the norm.

On 5 April, the BCT moved 90 kilometers north of An Najef and executed Operation Free Karbala—a ground and air assault to clear the remnants of the Republican Guard’s Medina Division from the vital city of Karbala. For the first 48 hours, the 526th FSB supported urban operations with two separate FLEs. The first, a heavy ground FLE led by the SPO, established a forward logistics base 5 kilometers south of the city, which would evolve into the BSA in the coming days. The second element, a medical-heavy FLE positioned on Landing Zone Robin in Karbala, provided combat health support similar to that provided in An Najef.

After 5 days of intense city fighting, the brigade prepared to move through the Karbala gap en route to Objective Grady, a military airfield near the city of Al Iskandariyah. On 10 April, the FSB SPO led a heavy FLE with integrated aerial medical evacuation (MEDEVAC) capability 70 kilometers through the gap to Al Iskandariyah to establish a logistics support base

forward in the combat zone. On arrival at Objective Grady, however, the brigade received additional instructions to prepare to move toward Baghdad at first light. Throughout the night, the FLE provided critical resupply to brigade elements making final preparations for another jump forward.

On 11 April, the FLE jumped forward with the brigade tactical operations center to Baghdad and set up operations at a forward logistics base located at a food processing plant on the southern edge of the city. Over the next 48 hours, while the main body of the FSB moved operations to the military airfield in Al Iskandariyah, the FLE provided full-spectrum logistics support to brigade forces operating in Baghdad. When division leaders elected to concentrate the logistics power of the division support command in the immediate vicinity of Objective Grady, the FLE established a permanent presence in Baghdad to support brigade operations. For 2 weeks, the FLE provided support for all classes of supply, full direct support maintenance capability, and medical treatment and evacuation. (The FLE maintained two MEDEVAC helicopters on station at all times.)

In Baghdad, the unique capabilities of the FSB were fully realized. Enemy attacks in Al Mamudiyah, 20 kilometers south of Baghdad, threatened to sever the lines of communication along Highway 8. The FLE commandeered and repaired a small fleet of Iraqi Government vehicles to move brigade forces, captured ammunition and weapons, supplies, and equipment. Refrigeration trucks provided chilled water with sustenance packages; small forklifts moved equipment and supplies; and a variety of cargo trucks supported specific brigade movement requirements. Although they seem inconsequential, these actions allowed the FSB to limit the number of vehicles transiting Highway 8, effectively mitigating risk while focusing the logistics effort on the fight in the city.

Although an FLE is designed to provide support for limited periods of time (typically 48 to 72 hours), a more permanent presence enabled the division to benefit from consolidated logistics power while the brigade enjoyed reduced lines of communication and increased logistics responsiveness. When elements of the brigade began to move toward Mosul on 20 April, the FLE collapsed back onto the BSA, which had already marshaled for the movement north.

As with previous ground convoy operations, the FSB FLE led the BSA forward through Baghdad and north

Iraqi citizens greet a resupply convoy as it moves through Al Mamudiyah.



to Mosul to link up with the battalion quartering party. There, the BSA established operations at the Iraqi V Corps headquarters compound, which had been abandoned months earlier in the wake of coalition efforts to unseat the regime. Once again, the BCT cleared the city first and then began local security and stability operations to restore basic civil order to Mosul.

Stability Operations

In Mosul, the Strike Brigade quickly grew from a standard air assault infantry brigade into a hybrid combat team optimized to begin restoring basic order, reestablishing civil services, and returning the city to the people of Mosul. Supporting the main effort BCT became a mounting challenge for the 526th FSB. Instead of supporting a typical 3,500-man infantry brigade combat team, the FSB found itself sustaining four infantry battalions, an armor battalion, two field artillery battalions, a military police battalion, and nearly 6,500 troops who were executing the first decisive stability operation in Iraq. Included among those forces were a civil-military operations center, an Albanian infantry company, and the first vestiges of what would become a rebuilt Iraqi army. While the stability effort represented a significant operational challenge for the Strike Brigade, sustaining such a large and diverse coalition force tasked the FSB to its limits. After 41 days of combat operations, post-combat recovery began in earnest.

In the months that followed, the 101st Airborne Division established its headquarters in Mosul and its other two combat brigades operated west and south of the city. The Strike Brigade enjoyed unrivaled success in the city. It eventually brought an end to the threat of the sons of Saddam Hussein and served as the driving force behind the reconstruction of the city and the establishment of a viable civilian government there. The “Mosul model” soon became the national paradigm for stability operations and civil-military cooperation.

As the supported population of the 526th FSB swelled to more than 7,000 troops, the battalion expanded support operations to better accommodate the transition from dynamic combat operations to static stability operations.

The FSB’s maintenance company established the first local national repair program in theater to provide general support-level repair of reparable components and major assemblies. In the first 4 months of operation, the output of the program was more than double the number of major assemblies received from wholesale sources and was directly responsible for two-thirds of the combat platforms repaired in the company.

The BSA settled into the fixed facilities of the former Iraqi V Corps and became Camp Performance, a model in its own right, not only for quality logistics support but also for a peerless morale, welfare, and recreation (MWR) center. The expansive MWR com-



The 526th FSB central receiving and distribution area is relatively empty shortly after the unit arrived in Mosul.

plex offered soldiers a variety of options: a full-service restaurant, pizzeria, coffee shop, 50-station Internet café, souvenir shop and laundry, mini post exchange, satellite phone center, barber shop, specialty shop and tailor, game room, computer-based education center, consolidated chapel, classroom, conference center, and the first U.S. Forces library in Iraq, which was supported solely by private donation. Affectionately referred to as “China Beach” by visitors, the MWR complex was visited by as many as 3,000 troops each day.

For the duration of its stay in liberated Iraq, the 526th FSB continued to set the standard for forward logistics support. With the largest supported unit population in the 101st Airborne Division and a maintenance workload equivalent to two companies in the division support command, the performance of the 526th FSB is a testament to the versatility and resourcefulness of the soldiers and leaders supporting our forces at the tip of the sword. During the year-long deployment, the challenges and missions faced by the 526th FSB tested the mettle of the battalion, but the time in Iraq will forever be remembered as a “Best by Performance” year.

ALOG

MAJOR STEVEN M. LEONARD IS THE EXECUTIVE OFFICER OF THE 526TH FORWARD SUPPORT BATTALION, 101ST AIRBORNE DIVISION (AIR ASSAULT), AT FORT CAMPBELL, KENTUCKY. HE IS A GRADUATE OF THE UNIVERSITY OF IDAHO AND HOLDS MASTER’S DEGREES IN SYSTEMS MANAGEMENT FROM MURRAY STATE UNIVERSITY AND IN THEATER OPERATIONS FROM THE ARMY COMMAND AND GENERAL STAFF COLLEGE. HE IS A GRADUATE OF THE ORDNANCE OFFICER ADVANCED COURSE, THE COMBINED ARMS AND SERVICES STAFF SCHOOL, AND THE AIR ASSAULT SCHOOL.

Integrating Units in the BSA

BY COLONEL DAVID W. VERGOLLO AND MAJOR JOHN C. BIVONA, JR.

When a forward support battalion (FSB) commander has to take command of a brigade support area (BSA), he generally has a problem with integrating all of the units and capabilities in the BSA that have come under his charge. The coordination and information flow between the BSA/FSB S-3/S-2 and the maneuver brigade S-3/S-2 is often insufficient, overlooked, or an afterthought. That, at least, was our experience as FSB observer-controllers for U.S. Army Europe (USAREUR) and Seventh Army at the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany. We noticed that BSA unit integration often was overlooked in home station training and repeatedly caused difficulties for BSA leaders and occupants training at the CMTC.

As FSB observer-controllers at the CMTC, we had the privilege of training with every FSB commander in USAREUR. We can say without reservation that our FSB commanders are extremely knowledgeable about tactical logistics, confident, and well prepared to lead their battalions. They clearly demonstrate their understanding of logistics doctrine and tactics, techniques, and procedures (TTP), whether they are operating in a high-intensity-conflict (now called full-spectrum) rotation or as part of a mission rehearsal exercise at the CMTC.

However, we constantly observed FSB commanders wrestling with how to effectively integrate all the units, capabilities, and limitations of the BSA and execute overall command. Unfortunately, there is little written doctrine on this topic. Our FSB commanders have no trouble performing the duties of FSB commanders during a CMTC rotation. But they struggle greatly with how to function as BSA commanders and integrate all associated brigade combat team (BCT) units.

Unfortunately, FSBs are not always able to train with their BCTs. This is especially true in Europe. As a result, FSB commanders and staff, as well as BSA tenant units, are often unfamiliar with each other's specific mission, purpose, standing operating procedures (SOPs), and TTP. Lack of understanding of each other's roles and responsibilities in the BCT and the BSA command structure often results in a degradation of mission support for all units involved. The addition of slice elements—which have a habitual relationship to the BCT but do not train regularly with the FSB—under the FSB commander's control in the BSA can

cause dysfunction and friction as the units attempt to learn or create SOPs on the fly during an already intense training period.

As professionals, we always seek ways to continue to improve our units, ourselves, and ultimately our ability to accomplish the mission. In that vein, our observer-controller team has compiled some thoughts on improving this area of consistent confusion.

Know BSA Units

One deficiency we observed over the course of several CMTC rotations was the FSB commander's lack of knowledge of the functions the FSB must execute, the assets for which it is responsible, and the requirements it must fill when it commands a BSA. This lack of knowledge caused problems when it was not identified clearly before a rotation began and then produced severe "growing pains" as the FSB developed solutions during the short period of the exercise.

Lack of knowledge is not limited to the FSB; the maneuver brigade tactical operations center (TOC) is equally confused. Often, guidance, orders, and missions will be passed from the brigade TOC through the parent battalion and on to the field trains, totally bypassing the BSA TOC. This can cause great frustration within the BSA for planning or reacting to defensive requirements. A typical response from a BCT S-2/S-3 is that they thought the brigade S-4 would inform the BSA. In many cases, this does occur. However, information should come through S-3 channels first. We must help train our BCTs to think and treat our FSBs and BSAs as they do any other fighting unit. We must ensure that FSB S-3/S-2s continue to solicit information on a constant basis until it becomes second nature for all. This practice has to start at home station.

FSBs in USAREUR know their mission of providing direct support to their component BCT units. However, integrating BSA defense and command and control increases their learning curve greatly when they are at the CMTC. In part because of the geographic separation of USAREUR units before they arrive for CMTC rotations, it is rare for an FSB to train with all the units that normally would occupy a portion of the BSA. As a result, when units deploy to CMTC, they are forced to learn during their rotation, and that can lead to loss of time and training focus.

Know Unit Locations

The FSB commander and staff provide command and control for the BSA and for all units that occupy ground within the BSA's perimeter. The BSA TOC is the fusion center for command and control. The TOC must maintain situational awareness of all units within the BSA, including their requirements and capabilities for internal and external support of the BSA. Knowing the who, what, when, and where of friendly forces enables the BSA TOC to function at optimal efficiency. Some questions for the BSA staff to ask themselves are: What units will be occupying the BSA? What are those units' capabilities, and what can they bring to the BSA "fight"? Where should they be located? Will they be on the perimeter or tucked within the BSA's interior? Will they deploy or move frequently, and where will they go? Can they help plan the BSA's defense or provide a battlefield multiplier? When will they occupy their positions?

A more detailed illustration of the "where" question involves placing the task force field trains on the BSA perimeter. While the field trains have a great deal of firepower and manpower, the BSA commander and S-3 must recall that they have an external support mission that will effectively pull the majority of the field trains off the BSA perimeter for long periods of time as they move forward to resupply their units. The S-3 must have a contingency plan for this situation. By knowing the schedule for resupplying the task forces (a schedule that must be provided by the task forces through the brigade S-4, coordinated with the BSA support operations officer, and updated on a constant basis until each mission is complete), the S-3 can give the BSA commander options for how best to defend the BSA perimeter when most of the field trains are away on a supply mission.

Know Capabilities of Units in the BSA

The BSA commander also must know the capabilities of friendly units in the BSA. Such knowledge enables the BSA commander to deal with the many diverse situations that may arise on today's complex battlefield. For example, a common CMTC scenario is the approach of civilians from a nearby town to the BSA to request medical support for a farmer who has wandered into a minefield. This situation presents the BSA commander with several requirements to meet: providing medical support in the village, providing security for medical personnel offering that support, and identifying engineer capabilities for demining.

Improving FSB Command of the BSA

Given such problems, what are some ways to fix them? The following are some suggested actions that have proven successful in the past—

- Create strong leader relationships. If the FSB com-

mander cannot get to the field as often as needed, he should conduct tactical training without troops to discuss what the BSA does—its mission, command and control, and command relationships between the BSA TOC and unit command posts, including the brigade TOC. He also must know what capabilities tenant units bring to the BSA fight. To strengthen relationships, the FSB commander should invite unit leaders to an FSB staff meeting once a month or quarter. The intent here is to get personal. He should know the faces, and then all concerned can begin to understand capabilities, limitations, requirements, and mutual needs.

- Develop a BSA layout. The FSB commander must know how big an area each unit needs for operations and how well that area can be defended. He must know where, based on enemy avenues of approach, the units with the most firepower need to be placed. Very importantly, he has to be able to adjust when those units receive a mission that pulls them off the line.

- Analyze communications capabilities. The FSB commander must understand which units have what communications equipment. He must know if BSA units are listening to the BSA TOC frequency, the parent battalion frequency, or landlines because communications assets are limited. The FSB commander must know how to ensure that everyone knows what's going on, at the same time, all the time.

The tips described above are not earth-shattering, rocket science, or magical. Each one of us would say we already know these things and could figure them out—and for the most part we probably do and can. However, it is usually too late if this happens after a rotation or a mission starts. The key is to start the BSA integration training process as early as possible and in conjunction with other events, whether in garrison or a tactical environment. This ability is just as important as being able to execute our required tactical logistics functions; it is devastating to the overall BCT mission if we fail to integrate.

Our FSB commanders know how to command their units. The various units within the BSA (engineers, signal, military intelligence, military police, air defense artillery, field trains) also know how to perform their missions. But if we cannot integrate all units as a total BSA, soldier welfare and mission accomplishment are at stake.

ALOG

COLONEL DAVID W. VERGOLLO IS THE PROFESSOR OF MILITARY SCIENCE AT SOUTHWEST MISSOURI STATE UNIVERSITY. HE WAS THE SENIOR FORWARD SUPPORT BATTALION OBSERVER-CONTROLLER AT THE COMBAT MANEUVER TRAINING CENTER IN GERMANY.

MAJOR JOHN C. BIVONA, JR., IS THE OPERATIONS GROUP S-4 AT THE COMBAT MANEUVER TRAINING CENTER.

Eliminating the Iron Mountain

BY LAUREL K. MYERS, PH.D.

Just-in-time supply distribution has only reduced, and not eliminated, the hoarding of excess repair parts and supplies. The author believes that the Army must overhaul its entire supply system if efficiency in obtaining parts and supplies is to be achieved and hoarding is to stop.

The Army's traditional mass-based logistics system involves stocking a large inventory of parts and supplies that may be required to satisfy mission requirements. The intent of maintaining a large inventory is to shorten the length of time required to obtain parts and supplies when they are needed. These "iron mountains" of stocks are regarded as dependable, readily available sources of supplies required for forces to be rapidly deployable, highly mobile, and sustainable. Maintaining iron mountains of supplies places heavy demands on Army resources that are increasingly scarce, including warehouse space, personnel to operate warehouses and move supplies, and space on transporters. However, budget reductions have continued to decrease the funds allocated to resource these functions over the years.

Following the end of the Cold War, most Americans felt that overseas threats to U.S. interests had been reduced greatly. Thus, during the 1990s, politically motivated changes produced an austere fiscal environment that limited the Army's ability to carry out the policies and commitments mandated by the National Military Strategy. When the military operational structure was reduced even as military commitments around the globe increased, Army supply logistics became inadequate. Budget constraints restricted routine vehicle repairs, delayed deliveries of parts and supplies, and impeded the implementation of vehicle maintenance initiatives and modernization programs.

After Operation Desert Storm, the Army began a shift from just-in-case stockage to a more cost-effective, velocity-based logistics system that closely parallels the distribution system used in the commercial sector. With this system, known as just-in-time distribution, buyers communicate with suppliers electronically to order needed supplies that are shipped directly to the user without the need for warehouse storage. Just-in-time distribution replenishes needed items as consumption

occurs and substantially reduces the inventory. An electronic supplier-buyer interface also eliminates several steps in the ordering process, thereby speeding delivery of supplies.

Just-in-Case Stockage

For users of just-in-case stockage, the quest for a part usually begins with an attempt to get the item from another in-theater unit that may be stocking it against some future need, may already have traded the part with another unit, or may have misplaced it, which results in a search. Thus, units depending on just-in-case stockage may experience extended wait times until they receive needed parts.

An important advantage of just-in-case stockage is that the unit in need may have stocked the part "just in case" it is needed so that it is immediately available to the requester and no wait time is encountered. However, interviews with personnel deployed for Operation Desert Storm indicated that, in using the just-in-case system, they often could not locate requested parts that were supposed to be in the theater.

Just-in-Time Distribution

The users of a just-in-time distribution system also face wait times that vary according to whether or not the manufacturer of the needed part has it on hand, can produce it specifically to fill the order, or has discontinued manufacture of the part. In just-in-time distribution, a needed part is ordered through channels from the manufacturer or depot and shipped directly to the requesting unit. A significant disadvantage of pure just-in-time distribution is that the requester has no option to obtain a part from just-in-case stockage in the theater.

The findings of an independent 1995 study of supply logistics in Operation Desert Storm indicated that, because military customers had to use chains of com-



mand and distribution in the ordering and delivery processes, the speed of Army distribution of supplies was slower than that of civilian distribution. At that time, Department of Defense distribution systems took 26 days to deliver in-stock items, whereas commercial firms delivered in-stock items in 1 to 3 days. Military procurement of a repair part averaged 88 days versus ½ to 4 days for commercial firms, and the average military repair cycle was 40 to 144 days versus 3 to 14 days for commercial firms.

During Desert Storm, the just-in-case logistics system was so severely hindered by misprioritized shipments that high-priority items, such as food, ammunition, and fuel, were not delivered to participating units in a timely manner. To avert the possibility that units might run out of critical supplies, a “work-around” just-in-time distribution system called Desert Express was developed. The Army used a similar system in Bosnia to deliver critically needed supplies, particularly during the buildup phase of that operation. However, if ordered parts were not rated as high priority in the ordering process and the requisitions traveled through normal supply channels, the customer wait time was so long that it sometimes posed a threat to operational readiness.

In 1991, Lieutenant General William G. Pagonis, commander of the 22d Support Command, reported in his after-action review of Operations Desert Shield and Desert Storm that logistics management units were late in arriving in the theater and, once they were there, they often were unable to manage supplies effectively. To keep supplies and equipment flowing into the theater, local laborers were hired and combat troops were

The flow of supplies competes with the flow of vehicles in this crowded staging area.

commandeered to offload ships. This finding was not surprising in view of the inherently cumbersome nature of deploying large logistics support units to deliver supplies to highly mobile combat units in overseas locations. In the staging area of an overseas theater of operations, the flow of supplies competes with the flow of vehicles to add to congestion and confusion.

General Pagonis reported that, during the reception phase of Desert Shield, the traffic flowing through the ports of Saudi Arabia totaled 12,400 tracked vehicles, 114,000 wheeled vehicles, 1,800 Army aircraft, 33,000 containers, 1,800,000 tons of cargo, 273,000 tons of ammunition, and more than 350,000 personnel.

Losses of container documentation multiplied the number of transportation personnel needed to channel containers to the correct deploying units. Such delays lengthened the waits by units to receive their supplies. Many containers languished in the staging area while awaiting identification to determine the appropriate receiving unit.

Nonstandard Solutions

A number of nonstandard methods have been used by Army personnel to obtain supplies during military operations, including padding supply orders, stockpiling extra items, and procuring supplies from black markets. General Pagonis noted that, during Desert Shield, multiple requisitions were sometimes placed for an item already in the theater, while other supply items were procured locally when possible. Army personnel

often resorted to alternative measures to obtain supplies because they had lost faith in the Army supply system.

Downsizing the Army's equipment inventories during the 1990s challenged the Army to use fewer transportation assets to provide supplies to forces deployed overseas. When transporters delivered equipment to seaports for shipment to the theater of operations, they often found that the accompanying iron mountains of supplies took up more space on the ships than planned. In such cases, units had to move their equipment to the theater on two different ships, which caused confusion and congestion for the deployed units awaiting the arrival of their equipment. Under these circumstances, host nation support was used to move supplies and provide lodging for incoming forces while they waited for all of their equipment to arrive.

Deployment Problems

Just-in-time distribution, used more often, but not exclusively, during recent operations, has resulted in the deployment of smaller basic loads that require fewer containers and thus facilitates more rapid deployment. This equates to reduced space requirements on strategic lift assets and less manpower to move supplies. At the same time, it creates the resulting opportunity to deploy more units on fewer strategic lift assets. Deployments conducted using just-in-time distribution have made more efficient use of strategic lift to move units into the theaters of operations. However, some just-in-case deployments of iron mountains of "extra" supplies continue.



Customer Satisfaction

Whether an organization chooses just-in-case stockage or just-in-time distribution is influenced by customer satisfaction. For example, in an overseas theater of operations, the level of customer satisfaction with delivery of vehicle repair parts reflects, to some degree, the level of operational readiness of vehicles. That is because operational readiness relies largely on the timely delivery of repair parts to complete required maintenance. Long wait times for ordered repair parts are likely to be viewed as far more detrimental by customers anxious to improve their operational readiness than by logisticians, who might accept a delivery speed slower than that of civilian shippers if it represented an improvement over past delivery speeds.

Many soldiers deployed overseas from 1990 to 2000 expressed dissatisfaction with the speed of delivery of vehicle repair parts. Customer satisfaction, both in units that used just-in-case stockage and in units that used just-in-time distribution, was influenced by the fact that they relied, to varying degrees, on excess repair parts their units had hoarded.

It should be noted that differences in satisfaction with delivery of repair parts within a theater could reflect relative proximity to supply sources during different deployments. If, for example, a unit located near both the corps command and a support unit could not immediately obtain a supply item from one location, it likely could obtain it from the other. Such a supply advantage clearly was not enjoyed by units stationed in remote areas. In some cases, those that had been part of a split deployment were able to call their home stations in the continental United States (CONUS) and request purchases be made via unit credit card and then sent to the overseas theater, where Army transportation would be scheduled to deliver the part to the requesting unit.

In reality, the Army's just-in-time distribution methods for ordering supplies are very similar to

Pallets of supplies are unloaded from a C-17 Globemaster aircraft at Balad Air Base, Iraq.

just-in-case ordering methods. The biggest innovation in the just-in-time distribution system is that the order forms are filled out by computer instead of by hand. Interestingly, both just-in-time and just-in-case units scheduled to deploy receive priority when ordering vehicle repair parts that will bring their operational readiness status to 100 percent. However, once the units are deployed, operational readiness suffers because repair parts take so long to procure.

Supply System Realities

The fact that civilian agencies can order and receive most parts within a few days indicates that just-in-time supply distribution does work and should work for the Army. Repair parts for military ground vehicles should not take significantly longer to arrive at their destinations than repair parts for civilian ground vehicles, especially since discontinued parts are maintained in depots against a future need and do not have to be manufactured before being shipped to the customer. However, considering the added channels that military vehicle requisitions go through from the user in an overseas theater to the manufacturer and the distances parts must traverse back to the user, it is reasonable to assume that en route times may be a few days longer.

Just-in-time distribution works fairly well in CONUS because the requester can use the unit's credit card to purchase common line items from manufacturers or local civilian distributors. However, parts for vehicles not in common civilian use, such as tanks and armored personnel carriers, are not available from local merchants. Just-in-time purchase of those parts is subject to a timeline similar to that for purchase of parts for vehicles overseas.

The just-in-time distribution system, as it is presently constituted, allows for enough reduction in excess to deploy Army forces quickly and efficiently. However, once the forces are in theater, just-in-case stockage is slightly more efficient for obtaining repair parts, though it is affected adversely by ineffective systems for tracking parts in the theater. The introduction of just-in-time distribution does not solve the problem of getting vehicle repair parts where they are needed when they are needed, except when distribution of these supplies to the requesting unit is aided by changes in the accompanying support infrastructure, such as the unit's location near a well-supported corps headquarters, or credit card purchase support from a CONUS home station.

Customer satisfaction drives the attitude toward supply distribution in the Army, just as it does in the civilian sector. Customer satisfaction identifies the

underlying force behind the need for change to the Army supply system. Comments from those on the receiving end of the Army supply system reveal that both just-in-case stockage and just-in-time distribution exhibit inefficiencies in delivering repair parts to users in the theater. The differences in customer satisfaction attributable to the proximity of units to supply sources and their ability to take advantage of credit card purchases by their home stations illustrate the importance of alternate support infrastructures.

The many layers of the supply hierarchy through which supply requests must travel point to the need for a completely electronic, real-time data interchange that ensures the speedy delivery of parts and supplies to requesters and satisfies the "need to know" of the supply hierarchy. The identification of some causes of low customer satisfaction brings to the forefront some opportunities to make significant improvements in the supply system in order to get parts and supplies to units overseas. Removing the hierarchical levels of the supply system through which each order must pass, and instead providing those levels with "copy-furnished" notification, will improve customer wait time and still allow those levels to track supplies and arrange in-theater transportation as required.

The fact that the just-in-time supply scenario has only reduced, and not eliminated, the hoarding of excess repair parts and supplies shows the soldiers' reaction to the Army's high readiness requirement in a climate that does not recognize the slow pace of the Army supply system. This reaction is a clear indication that, in its quest for continued high readiness standards, the Army must overhaul the entire supply system if efficiency in obtaining parts and supplies is to be achieved and hoarding is to stop.

When considering policy and process changes, decisionmakers must revamp the entire supply system to take advantage of all the available technology instead of simply automating the old ordering process. If the Army pursues drastic changes, it can increase operational readiness through greatly increased efficiency in delivery of supplies and parts to units and repair shops deployed in overseas theaters of operation.

LAUREL K. MYERS IS ASSIGNED TO THE NAVAL MEDICAL EDUCATION AND TRAINING COMMAND AT BETHESDA, MARYLAND. SHE HAS A BACHELOR'S DEGREE IN EDUCATION FROM FLORIDA ATLANTIC UNIVERSITY, A MASTER'S DEGREE IN EDUCATIONAL ADMINISTRATION FROM TEXAS CHRISTIAN UNIVERSITY, A MASTER'S DEGREE IN EARLY CHILDHOOD EDUCATION FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA, AND A PH.D. IN APPLIED MANAGEMENT AND DECISION SCIENCES SPECIALIZING IN LOGISTICS FROM WALDEN UNIVERSITY IN MINNESOTA.

Thinking Joint— Integrating Army Logistics

BY MAJOR LISA A. ZANGLIN

When Admiral Edmund P. Giambastiani, Jr., addressed the House Armed Services Committee last October on lessons learned thus far from Operation Iraqi Freedom, he described the new approach to warfare demonstrated in Iraq as “overmatching power.” Giambastiani, Supreme Allied Commander Transformation (North Atlantic Treaty Organization) and Commander of the U.S. Joint Forces Command, stated that the emphasis is no longer on numbers only but also on harnessing all of the capabilities the services and Special Operations Forces bring to the battlespace in a coherently joint way. This important point should be the key for developing future Army logistics systems and doctrine. Although threats from terrorists, insurgents, and enemy state-sponsored cells have dramatically changed the world in which the military operates, the responsibility of the services to defeat the enemy has not changed.

The first step toward exploiting all available capabilities is to educate the Army logistics community about existing systems and procedures that increase situational knowledge of the battlespace. Logisticians must understand combat missions in order to support them. If 9–11 has taught us anything, it is that there are no front lines and battlefields will never be linear again. The natural second step is to incorporate joint training and doctrine in all logistics planning. With insights gained from Operation Iraqi Freedom, logistics planners have discerned four important attributes that will ensure success on the battlefield. They are knowledge, speed, precision, and lethality.

Knowledge

Improved satellite capabilities made possible by new communications links have greatly improved knowledge and increased intelligence on the battlefield. The information these links provide enables extremely accurate targeting, which increases lethality and reduces the number of sorties required. Fewer sorties mean reduced fuel consumption, and fewer flying hours mean less aircraft maintenance. Fewer operational forces require a smaller logistics footprint to support them. Current Army logistics doctrine does not address the integration and leveraging of satellite capabilities or their advantages to the logistics community.

In addition to global positioning systems and satellite communications, other available technologies

could greatly enhance the knowledge of logistics units. An example is multispectral imagery. Multispectral scanner systems are passive, electro-optical sensors that collect and digitally record reflected and emitted electromagnetic energy. Data obtained from these systems range from the viability of supply routes to the most abundant water sources.

Space-based systems can provide much more than weather and communications data. However, many logisticians are not familiar with these systems and the information they provide because joint training that uses these resources is seldom offered. Information on these systems can be requested through various channels, such as the S–2 (intelligence staff officer). However, most battalion S–2s are unfamiliar with the types of information satellites can produce, and space operations personnel are not authorized in the division support command. Many space systems are classified and clearance is required to request data from them.

Speed

In Operation Iraqi Freedom, forces closed on the joint area of operations in less than 90 days as opposed to the 7 months required in Operation Desert Storm. Although a smaller force equates to a smaller logistics footprint, the overall customer wait time was reduced dramatically. Modes of delivery and capabilities have improved greatly since 1990. Available bandwidth has increased more than 40 times, which has permitted direct visibility over supplies and enabled the destination of supplies to be adjusted while they are en route. This has provided more flexibility for the forces in theater because they do not have to wait for critical parts.

Some systems problems remain, however. The Army supply system is not integrated with the other services’ systems. The Marine Corps has many of the same vehicles as the Army, so they can use the same repair parts. However, an Army unit could have a part shortage while a Marine Corps unit operating 1 mile downrange could have an excess of the same part. Because neither service has visibility over the other’s supply system, the Army requirement would not be filled. Depending on each service’s stockage level, a part also could cost one service more than it costs another.

Other coalition forces in theater often have supplies needed by U.S. forces. In many instances, supplies could be shifted to where they are needed most under the provisions of acquisition and cross-servicing agreements. These agreements with other nations’ defense ministries authorize the acquisition and transfer of logistics support between the signatories. They are widely used throughout the U.S. European Command. Army logisticians also could use other types of joint and coalition support agreements to obtain needed supplies and equipment, and an automated system

linking the services and coalition forces would increase the speed of delivery even more.

Precision

Precision applies not only to weapon systems but also to decisionmaking. Using precision munitions increases lethality on key targets. Over two-thirds of the ordnance expended in Operation Iraqi Freedom was precision guided, and campaign objectives were obtained using one-seventh of the ordnance used in Operation Desert Storm. "Precision decisions" allowed a combination of Special Forces and conventional forces to work jointly, maximizing effectiveness. All of these factors contributed to the drafting of a military response to enemy actions that inflicted minimum damage to Iraq's infrastructure, which conserved resources that would be needed in follow-on stability operations.

For Army logisticians, precision means delivering the right supplies in the right amount to the right location at the right time. Joint logistics doctrine uses key elements of the logistics system—lines of communication, theater transportation networks, specified units, and host nation support—to make sure resources are available to support combat power. Overall, this works well except in one area—construction. Navy Seabees, Air Force REDHORSE (Rapid Engineer Deployable Heavy Operational Repair Squadron, Engineer), and Army Engineer units operating in the same theater work independently. Although each service is capable of various construction activities, there is little, if any, coordination between them in theater.

Engineer support could be coordinated before deployment to see if a REDHORSE squadron is available. If so, vertical construction units could focus on other areas. (Vertical construction units are those that erect buildings, towers, fences, and bridges and install electrical, sanitary, and heating systems in them). Although they all use class IV construction materials, each service requisitions them differently. The Army relies heavily on contracts for construction services. However, using joint and multinational assets could save time and money since the materials may be in theater already and transportation costs could be minimized.

Lethality

The increase in knowledge, speed, and precision and the integration of air, ground, and sea operations have contributed to the final attribute of success—lethality. However, logistics provides the foundation of combat power. Planning and executing the movement and sustainment of combat forces in a theater of operations makes the forces involved lethal.

The fundamental point in Admiral Giambastiani's congressional testimony was that the military's tradi-

tional planning and approach to warfare have shifted. Instead of employing service-centric forces that must be deconflicted on the battlefield to achieve victories of attrition, a well-trained, integrated joint force now enters the battlespace quickly and conducts decisive operations with operational and strategic effects.

The lack of a single logistics structure limits the logistics community's ability to synchronize priority of support with priority of effort. Since our Nation's founding, military forces have relied on the combined capabilities of the various services and coalition partners. Since the 1980's, we have had a Combined Force Land Component Commander, a Combined Joint Force Air Component Commander, and a Combined Joint Maritime Component Commander to bring combat elements together to direct their overall capabilities toward national strategic goals. Joint force commanders do not care where a capability is obtained as long as it fulfills the need. This same logic needs to apply to logistics. For Army logisticians, the challenge is to use sister services and coalition forces to get what they need quickly and deliver it with precision.

Although current operations have forced operators to conduct joint and coalition operations and to fight as a joint and combined team, the Army logistics community must establish innovative training and doctrine that incorporates lessons learned while providing support in joint environments. Although Army joint logistics doctrine is still in its infancy, the essential imperatives of combat service support—man, fuel, feed, arm, fix, and sustain—can be applied to the over-matching power approach to modern warfare. Fixing, fueling, moving, sustaining, and arming the forces give them their lethality. How the services conduct these functions in joint operations should be understood, trained, and perfected by Army logisticians. The constantly changing nature of our operational environment requires a joint logistics structure that is flexible, fully integrated, and capable of orchestrating complex, simultaneous distributed operations rapidly and decisively. Joint logistics affects the Army more than it affects its sister services because wars are still won by "boots on the ground," and most of those boots belong to the Army.

MAJOR LISA A. ZANGLIN IS ASSIGNED TO THE DIRECTORATE OF COMBAT DEVELOPMENTS FOR COMBAT SERVICE SUPPORT AT THE ARMY COMBINED ARMS SUPPORT COMMAND AT FORT LEE, VIRGINIA. SHE IS A GRADUATE OF THE ARMY COMMAND AND GENERAL STAFF COLLEGE, THE JOINT FORCES STAFF COLLEGE, THE AIR FORCE INSTRUCTOR COURSE, AND THE JOINT AEROSPACE COMMAND AND CONTROL COURSE. SHE HAS MASTER'S DEGREES IN HUMAN RESOURCE MANAGEMENT AND MILITARY SCIENCE FROM TROY STATE UNIVERSITY IN ALABAMA AND IS COMPLETING DOCTORAL RESEARCH IN PUBLIC ADMINISTRATION THROUGH AUBURN UNIVERSITY.

The Theater Support Command at War

BY MAJOR GENERAL GEORGE WILLIAM WELLS, JR., USAR

The theater support command integrates Active and Reserve component soldiers. How did this multicomponent organization perform in Operations Enduring Freedom and Iraqi Freedom, and what changes may be needed to ensure its continued relevance?

Lessons learned in Operations Desert Shield and Desert Storm and later in the Balkans have fostered significant changes in Army logistics. One of the most important was the conversion of the old theater Army area command (TAACOM) to a multicomponent theater support command (TSC). What have been the results of this change so far? We can find an answer in Operation Enduring Freedom and Operation Iraqi Freedom, which have served as a logistics laboratory for evaluating the integrated, multicomponent TSC.

During these operations, TSCs have been instrumental in sustaining the warfighter. TSCs have moved huge volumes of materiel at a faster pace to their customers, improved their real-time information and tracking capabilities, and increased their responsiveness to their customers' special needs. From the outset of the operations, TSCs effectively executed split-based operations and coordinated joint logistics with the other services and coalition partners (though there is room for improvement). The logistics warriors of the TSCs have risen to every challenge. No mission has gone unsupported; no combat objectives have been missed because of logistics constraints. In terms of moving critical items from the manufacturer to the foxhole, TSCs have validated themselves as the single point of contact for echelons-above-corps logistics.

In this and two future articles, I will look briefly at how the TSCs functioned during Enduring Freedom and Iraqi Freedom, from the alert and mobilization phase through the redeployment and reconstitution phase. I will review some of the factors I discussed in previous *Army Logistician* articles and their effects on Enduring Freedom and Iraqi Freedom as we in the 21st Theater Support Command viewed them from the ground. [See the May–June 2000, July–August 2000, September–October 2000, and January–February 2003 issues for General Wells' previous articles on the TSC.] My intent is not to get into the details of all the challenges facing TSCs but rather to concentrate on the overall operation and structural makeup of the TSC

and the integration and relationships of the Active and Reserve components.

Mobilization

During the mobilization of any Army organization, all personnel are required to muster at a designated site. The Active and Reserve component elements of a TSC headquarters are separated by thousands of miles, so meeting this mobilization requirement was not practical for Operations Enduring Freedom and Iraqi Freedom. Validation of soldier training was in question, so qualified unit soldiers ended up certifying their fellow soldiers. Real dilemmas challenged lines of authority; leaders at many levels crossed component lines to make deals and decisions that were not always in accord with prescribed processes. Legal control of soldiers left behind for medical and legal reasons remained unresolved in many cases.

These issues created frustration and tension among the various commands trying to deploy the TSCs' Reserve component soldiers. A number of decisions later led to administrative challenges in areas such as credit for being a mobilized soldier, failure to follow mobilization regulatory guidance on individual soldiers' responsibilities, and the validity of certification by others that a unit met the prescribed standard to deploy. The challenges of the mobilization process have been well documented, and the Army has recognized the need for changes.

Seamless Operations

Thomas F. Hall, the Assistant Secretary of Defense for Reserve Affairs, has stated that the Nation's heavy reliance on its Reserve components is actually a good thing—proof that the “total force” concept is working and that the Reserve components are full partners in the Nation's defense. Operations Enduring Freedom and Iraqi Freedom demonstrated the ability of TSC soldiers to blend together and work as a team, regardless of their component affiliations. Deployed logistics units fit in with the TSC headquarters and

responded with outstanding support and leadership.

The multicomponent, integrated approach to support by TSC logisticians was on target. There was no time to worry about turf, Active-versus-Reserve culture concerns, or the ability to employ every able-bodied soldier and civilian. However, following the conflict, relationships and working conditions changed. When the Reserve component soldiers returned from their split-based operations, they found there was no need for their skill sets on a daily basis; a majority of the soldiers had little or no work to do. Why? Two issues were apparent.

First, earlier Army Force Design Updates and Total Army Analysis processes attempted to account for varied missions, sizes of areas of responsibility, and existing operating tempo within the TSCs. The TSCs then identified a formal breakout of authorized Active and Reserve positions. However, in Enduring Freedom and Iraqi Freedom, the Army discovered that the original identification of these positions was not applicable in nonconflict environments (though the identification worked well during the two operations). Second, as the initial identification of component slots in the TSCs was being made, decisions were made at higher command levels not to fill many of the authorized Active component slots in the TSCs. Over the ensuing years, the TSCs were forced to adapt to this shortfall by using soldiers from table of distribution and allowances units, local nationals, and Department of the Army civilians to meet their daily workloads. These individuals fill in the gaps when Reserve soldiers are deployed. However, this creates problems as civilians fill in and assume the reservists' roles; when the reservists return, there is no work for them to do in their assigned missions.

We need to think about how this will work in the future. Civilians were afraid to allow the reservists to do their assigned missions. We recognized the dilemma too late to ease tensions and misunderstandings among the affected organizational personnel. At my TSC, we did not think through the challenge of post-conflict integration. While we met the mark on the integration of our headquarters on the battlefield, we failed to look far enough down the road and view how integration would work in peacetime.

The foundation of knowledge for the multicomponent unit is in its Reserve element. Reservists bring intangible skill sets that an Active component soldier must acquire over a 1- to 3-year assignment. Once that Active component soldier moves on, the education cycle begins again in the unit with a newly assigned Active component soldier. This means that, in a multicomponent unit like the TSC, the reservists retain the bulk of the unit's knowledge and experience. Typically, the reservist is there before the assignment of the

Active component soldier and remains long after he has left.

As an integrated multicomponent organization, the TSC must capitalize on reservists' capabilities. We cannot afford to train these soldiers, treat them poorly, and then expect to retain their time and services in the Army. These personnel are precious commodities vital to future organizational operations. To believe that the force as aligned today will become a full-up TSC in the future is not realistic. Combat service support units have long been, and will continue to be, the bill payer of the combat warrior. We have to recruit, train, and build new logistics leaders; this could take 3 to 4 years, but we do not have the luxury of that much time.

Demobilization and Reconstitution

As the need for logisticians fluctuated in the theater, it became a challenge for TSC leaders to determine when and how to redeploy their mobilized soldiers. This was not a simple process. The general movement of the TSCs back from the theater to home station occurred in increments instead of a traditional unit movement. Determining these movements was accomplished using a team-oriented approach. TSC leaders had to carefully review ongoing missions, future possibilities, and directed guidance from higher headquarters.

In the process of returning home, TSC leaders had a twofold requirement: continue to support the combat soldiers in Iraq and simultaneously collapse the TSC workforce in theater. When the process involved the Reserve soldiers, they had to rotate back to their mobilization sites and on to their home stations with their leaders. Once at home, these reservists, while receiving time off, went through a reconstitution process in which they were reorganized and trained in preparation for a potential future mobilization.

The process of reconstitution is sometimes overlooked, but it remains a critical element in getting soldiers retooled. This period also represents a vital time for soldiers to reconnect with their families and jobs. We hope they will maintain a positive outlook and ultimately will decide to remain in the Reserve force. If soldiers perceive that they are being mistreated and that their leaders have less regard for their personal needs than they expect, those leaders eventually will suffer the loss of quality personnel and the accumulated experience they embody.

Force Structure

The Army is reducing its reliance on divisional sets and, instead, is turning to tailored, interchangeable combat sets as the norm. Logisticians will have to transform accordingly. Based on our current battlefield experiences, the push to restructure the Army

means a continued, changing alignment of leaner logistics elements. By flattening hierarchical logistics headquarters up and down the Army, we can be even more time sensitive to the combat commander's needs.

The baseline structure of the TSC has not changed dramatically since its inception. However, within each TSC, some military positions have been converted from one component to the other. These conversions have been made to respond to theater-specific needs and to enhance the effectiveness of split-based forward logistics. When done with a team approach, these changes have worked well.

However, when one component makes changes without a full understanding of the consequences to the other component, problems with the overall operation of the TSC can result. For example, it is critical that each component of the TSC has a command and control capability. A TSC has a troop support battalion (TSB) and a headquarters and headquarters company (HHC). It is logical to have one or the other of these command and control elements in each component. A lack of command-selected leaders in either component creates command and control issues. If the TSC leaders determine that an Active component presence is needed within the TSB to launch the early-entry module command post forward, then the HHC must be positioned in the Reserve element to provide command and control for its required administrative and operational needs. An unbalanced command and control structure will create future problems individually and collectively.

Continuity must be maintained in the command and control elements. Slots assigned to one component must not be filled arbitrarily with soldiers of the other. This can create needless leadership challenges when soldiers in leadership positions arrive during mobilization or for normal overseas deployment training. Attempting to fill one component slot with a soldier from the other component sends the wrong message. The offended soldier may react negatively and eventually develop an undesirable "we versus they" attitude.

Memorandum of Agreement

An integrated multicomponent organization must have a detailed memorandum of agreement (MOA) in place. The MOA outlines how all parties within the TSC are to function in such areas as supply, accountability, personnel ratings (in relation to regulatory guides), and procedural working agreements with other headquarters. The MOA needs to address those unique command requirements that fall outside of DA-level multicomponent procedures and policies. This will tell leaders and their headquarters how administrative processes are to work in the Active and Reserve component environments.

The MOA must be in place, and the leaders must follow it. At times, some TSC personnel may violate the agreements intentionally or unintentionally. It is apparent that, if leaders do not take a role in enforcing the MOA, TSC personnel will be forever confused about their administrative relationships. As senior leaders are assigned, they must be fully educated on MOA processes. All assigned personnel then must adhere to the MOA processes. The alternative will lead to confusion, with individuals making policy decisions not outlined in the MOA.

Reserve Structure Relationships

The TSC Reserve element is situated in a regional readiness command (RRC). However, it is somewhat isolated from the RRC since it is neither a direct reporting organization nor a major subordinate command. It uses and depends on the RRC for base operations support. Administratively, it is linked to both Active and Reserve components for soldier support. The senior Reserve leaders find themselves in a precarious position in their relations to their supporting headquarters and WARTRACE units. They must constantly define the TSC Reserve element's structure and its operational scope and then request funding and educate those unfamiliar with TSC functions.

We have observed some tremendous progress on the part of those involved in making the integrated, multi-component concept work. We must remember that each TSC is a unique organization structured from a base table of organization and equipment. While we have improved our ability to develop new logistics conceptual doctrine and plan for and execute joint logistics support and sustainment operations, we have not made the same progress in crafting coordination between our own Army components.

The force structure of the Reserves is constantly in flux. Many experts view an organization that is reducing elements of its workforce as signaling that those elements are no longer relevant. It appears that the TSC Reserve elements are headed in that direction. Failure to deploy our TSC Reserve soldiers to do their mission will inhibit the activities of the combat warrior. The bottom line is that you can never grow stronger and more relevant from a position of weakness. Continuing in such a direction ultimately will eliminate what we know today as the Reserves.

ALOG

MAJOR GENERAL GEORGE WILLIAM (BILL) WELLS, JR., USAR, IS THE ASSISTANT DEPUTY CHIEF OF STAFF FOR MOBILIZATION AND TRAINING, ARMY G-4. HE PREVIOUSLY SERVED AS CHIEF OF STAFF OF THE 21ST THEATER SUPPORT COMMAND IN INDIANAPOLIS, INDIANA.

Multifunctional Medium Heavy Transportation Company

BY FIRST LIEUTENANT JOSEPH P. CORRIGAN, JR.

The author presents a case for creating a transportation company that combines the elements of three separate companies within a support battalion.

I am assigned to the 68th Corps Support Battalion, 43d Area Support Group, at Fort Carson, Colorado. The battalion's transportation assets consist of three transportation companies: a palletized load system (PLS) company, a bulk petroleum company, and a heavy equipment transporter (HET) company headquarters with a HET platoon and maintenance assets. I believe that all of these transportation assets could be replaced by one multifunctional medium heavy transportation company.

A multifunctional medium heavy transportation company would consist of three PLS platoons and one HET platoon. One of the PLS platoons would operate flatracks and container-handling units. Another PLS platoon would consist of two squads: one to conduct flatrack and container-handling unit operations and one to carry potable water using 3,000-gallon tank and pump modules. The third PLS platoon would carry bulk petroleum using 3,000-gallon tank and pump modules. With this configuration, one company could transport all classes of supply.

NTC Deployment Woes

The 68th Corps Support Battalion deployed in 2002 to the National Training Center (NTC) at Fort Irwin, California, to support the 3d Brigade Combat Team (BCT), 4th Infantry Division (Mechanized). To meet the supply requirements of the 3d BCT, elements from three different companies delivered logistics packages. My company—the PLS company—delivered classes I (subsistence), III (P) (packaged petroleum products), IV (construction and barrier materials), and V (ammunition). The bulk petroleum company handled class III (bulk), and the HET platoon moved heavy equipment.

This delivery method posed many problems for me as a platoon leader. I was given a supply mission and told which transportation systems would be required. However, the companies had not trained together the way they would fight. In garrison, we had trained collectively as a platoon and company, but, at NTC, we conducted missions on a battalion level. The problem lay in the fact that I did not know the equipment or the soldiers I was asked to lead in the missions. We lacked

cohesion because we had never trained together. This problem could be eliminated with the formation of an organic company such as a multifunctional medium heavy transportation company.

A Solution

I believe the multifunctional medium heavy transportation company concept has many advantages. Since many operations do not require the support of an entire company's assets, most truck transportation platoons are designed to deploy independently of their companies. They link up with other truck platoons in order to meet all the supply requirements of the unit they will be supporting. A multifunctional medium heavy transportation company could deploy as a cohesive unit and be more efficient at conducting operations.

Another advantage of a multifunctional medium heavy transportation company would be a smaller logistics signature. Manpower requirements could be shifted from combat service support to warfighting. A multifunctional medium heavy transportation company also would save money. The Army could replace transportation systems with modules adapted to the PLS. Replacing transportation systems with one vehicle also would reduce the lines of repair parts that the Army would be required to stock.

Having a unit that trains together and is ready to provide transportation support to the support battalion would improve the service provided while reducing the logistics footprint. I believe the Transportation Corps should explore this concept.

FIRST LIEUTENANT JOSEPH P. CORRIGAN, JR., IS A PLATOON LEADER IN THE 32D TRANSPORTATION COMPANY, 68TH COMBAT SUPPORT BATTALION, AT FORT CARSON, COLORADO. HE HAS A BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION FROM WILLIAM PATERSON COLLEGE IN NEW JERSEY AND A BACHELOR'S DEGREE IN HEALTH AND PHYSICAL EDUCATION FROM THE UNIVERSITY OF INDIANAPOLIS AND IS A GRADUATE OF OFFICER CANDIDATE SCHOOL AND THE TRANSPORTATION OFFICER BASIC COURSE.

ALMC: 50 Years of Excellence

The Army Logistics Management College (ALMC) at Fort Lee, Virginia, celebrates its 50th anniversary in July. The college began as the 12-week Army Supply Management Course, which was established on 1 July 1954. The first class was made up of 14 members of the staff and faculty and 20 officers and civilians occupying key managerial positions in the Army's supply system.

The curriculum of the Army Supply Management Course grew until May 1956, when General Orders No. 15 established the Army Logistics Management Center as a class II activity under the administrative jurisdiction of the Quartermaster General and the operational control of the Army Deputy Chief of Staff for Logistics. These orders also designated the Supply Management Course as a subordinate activity of ALMC and established additional management courses in procurement, requirements, distribution, maintenance, and property disposal.



Between 1956 and 1962, ALMC developed nonresident courses and added research functions to its mission. During that time, the curriculum was expanded to include correspondence courses and the use of accredited instructors in off-campus modes, and training of international and Reserve component officers began.

In August 1962, ALMC was placed under the command of the Army Materiel Command (AMC). In October 1991, ALMC became an Army Training and Doctrine Command (TRADOC) school under the command of the Army Combined Arms Support Command.

ALMC began operating the Department of Defense Satellite Education Network in January 1985. Control of the Satellite Education Network was transferred to the Army Training Support Center in 1992. However, the Satellite Education Network continues to be located at ALMC.

ALMC was redesignated as the Army Logistics Management College in 1987. Designation as a college represented a significant achievement in the organization's history and further solidified its reputation for excellence in acquisition and logistics training.

In 1992, the Combined Logistics Officers Advanced Course was established at ALMC to prepare captains in the aviation, medical, ordnance, quartermaster, and transportation branches to become branch company commanders and staff officers in multifunctional battalions. The course was renamed the Combined Logistics Captains Career Course in 1999.

ALMC Mission

Enhance the readiness and sustainability of U.S. forces in joint, interagency, and multinational operations through training, education, consulting, and research.





ALMC began in a one-story frame building. Today, it occupies a 179,000-square foot academic and research facility that includes classrooms with state-of-the-art automation, a metals laboratory, a 40,000-volume academic library, and television studios. (Classroom photos shown on page 50.)



In September 2002, the Council on Occupational Education (COE) awarded ALMC formal accreditation status as a non-degree-granting occupational education institution. This accreditation is recognized by the U.S. Department of Education.

Today, ALMC's two schools—the School of Systems and Acquisition Management and the School of Logistics Science—present courses in logistics leader development, operations research, acquisition management, integrated logistics support planning, materiel management, and disposal operations management. They also offer courses in installation logistics management, environmental management, hazardous materials handling, financial management, decision risk analysis, and quantitative analytical techniques.

ALMC operates the Army Logistics Library and publishes the *Army Logistician* professional bulletin, which provide information resources for military logisticians throughout the world.

From the original class of 34 students, ALMC has grown into a major Army school that offered courses to approximately 31,000 students in 2003. **ALOG**

ALMC's first civilian graduation speaker, Gerald R. Ford, then a congressman from Michigan and later President of the United States, told graduates of the June 1955 class, "The Army Supply Management Course is an example of the outstanding job the Army has done in improving the Army school system. We look for outstanding accomplishments from you members, and we know the record will speak for itself."

ALOG NEWS

(continued from page 1)

SECRETARY OF DEFENSE REPORTS ON EXCESS INSTALLATION CAPACITY

The Base Realignment and Closure (BRAC) process for 2005 took a significant step forward in March when Secretary of Defense Donald H. Rumsfeld submitted a force structure plan and infrastructure inventory to Congress. Based on this report, the Secretary certified to Congress "that the need exists for the closure or realignment of additional military installations . . ."

In the report, the Department of Defense (DOD) estimated that 24 percent of its infrastructure is excess capacity. Of the individual services, the Army has the greatest amount of excess capacity: 29 percent of its infrastructure. The percentages of excess capacity for the other services are 21 percent for the Navy and 24 percent for the Air Force, as well as 17 percent for the Defense Logistics Agency (DLA). The estimates of excess capacity are based on the infrastructure needs of the forces identified in the force structure plan (as approved by the Joint Chiefs of Staff for fiscal year 2009) and on base capacity assessments made by each military department and DLA.

DOD must present its BRAC recommendations to an independent commission in May 2005. The 2005 BRAC process will be the fifth such analysis, the others being completed in 1988, 1991, 1993, and 1995. Based on the results of the 1993 and 1995 BRAC decisions, DOD believes that next year's BRAC recommendations will produce annual net savings for each military department by fiscal year 2011.

DDOC ENJOYS EARLY SUCCESS

The U.S. Transportation Command's (TRANSCOM's) Deployment and Distribution Operations Center (DDOC), which was established and deployed to Kuwait under the tactical command of the U.S. Central Command (CENTCOM) earlier this year, is helping to solve the distribution problems of U.S. military forces deployed to Asia. The

center, staffed by 63 joint logistics experts, links strategic deployment and distribution processes to operational and tactical functions to support the warfighter.

Within its first 2 months of operation, the DDOC synchronized strategic and intratheater lift, achieving a cost avoidance of \$268 million. It improved readiness by diverting 494 tons of theater assets and improved strategic delivery of critical materiel directly to forward units. The DDOC reduced operational costs by improving in-transit visibility and total asset visibility, diverting over 100 containers of class IX (repair parts), and stopping 1,700 containers of class IV (construction materials) from being shipped from the continental United States. It accelerated retrograde of depot-level reparables by 900 percent and improved strategic delivery of critical materiel directly to forward units by bypassing traditional chokepoints.

The DDOC has been so successful that other commands are asking for one. At the Association of the U.S. Army Logistics Symposium in April, Major General Robert T. Dail, Director of Operations, J-3, TRANSCOM, said about the DDOC, "There's good news, and there's bad news. The good news is that everyone wants one; the bad news is that everyone wants one." General Paul J. Kern, Commander of the Army Materiel Command, described the DDOC as "an example of the innovative thinking we need in the coming years."

The DDOC is one of several initiatives taken by TRANSCOM since its designation as Distribution Process Owner to improve end-to-end distribution within the Department of Defense. Combining the expertise of the Defense Logistics Agency (DLA), TRANSCOM, the military services, and other materiel distribution stakeholders, the CENTCOM DDOC is revamping how materiel is shipped, received, and tracked in a theater of operations. DLA is the largest provider of sustainment materiel and generator of sustainment movement requirements for the Department of Defense (DOD). TRANSCOM provides air, land, and sea transportation for DOD. The partnership of these two organizations with other logistics providers will improve ground truth and in-transit visibility for distributors and commanders.

The DDOC identifies and manages all of the movement requirements and the large volume of containers, pallets, and supplies coming into the theater from DLA's many distribution centers and vendors, the General Services Administration, and the Army and Air Force Exchange Service.

CENTCOM expects the establishment of the DDOC to result in better logistics support so that soldiers, sailors, airmen, and marines will have whatever they need, where and when they need it, to ensure success on the battlefield.

ARMY TO RECOGNIZE PROFESSIONAL LOGISTICIAN CERTIFICATION

Effective 15 April 2004, Army officers and warrant officers who have been awarded the Certified Professional Logistician (CPL) designation by SOLE—The International Society of Logistics are authorized to add their CPL certification to their Officer Record Brief (ORB) and Official Military Personnel Folder (OMPF). Army Regulation 600–8–104, Military Personnel Information Management/Records, is being revised to reflect the authorized inclusion of the CPL certificate in the OMPF. The CPL designation is one of a number of civilian-granted professional certifications authorized for documentation and recognition as specialized education and training. Others include the Certified Professional Engineer, Certified Professional Accountant, and Certified Professional Contract Manager designations.

To add the CPL certification to their ORB and OMPF, Active Army and Army Reserve officers should submit a notarized copy of the SOLE CPL certificate to their assignment officer in accordance with existing procedures for the documentation of civilian education and training. Army National Guard (ARNG) CPLs can submit their certification documentation to their state Military Personnel Offices.

Questions about the ORB and OMPF procedures should be directed to Major James Kennedy at (703) 325–5262 or kennedj0@hoffman.army.mil. ARNG questions should be directed to the appropriate state Military Personnel Office. For assistance in replacing CPL certificates or information about the CPL program, contact SOLE headquarters at (301) 459–8446 or send an email to solehq@erols.com.

ARMY PLAN ADDS AND ENHANCES SBCTs

Secretary of Defense Donald H. Rumsfeld has authorized the Army to acquisition and field Stryker

Brigade Combat Teams (SBCTs) 5 and 6 and retrofit brigades 1 through 4 with newer technology as it becomes available.

Under the approved plan, the Army will enhance the aviation, fire support, computer networks, and sensor capabilities of new and already fielded SBCTs at a cost of about \$1.4 billion. The enhancements will begin to appear as SBCTs 5 and 6 are fielded. SBCTs 1 through 4 then will be retrofitted with the improvements based on lessons learned from SBCTs 5 and 6.

The fifth SBCT—the 2d Brigade, 25th Infantry Division (Light), at Schofield Barracks, Hawaii—is scheduled for fielding in 2006. The sixth—the 56th Brigade (Mechanized), 28th Infantry Division (Mechanized), of the Pennsylvania Army National Guard—is scheduled to begin fielding in 2008.

The first Stryker brigade—the 3d Brigade, 2d Infantry Division, from Fort Lewis, Washington—is deployed to Iraq. The second Stryker brigade—the 1st Brigade, 25th Infantry Division, also from Fort Lewis—is training on its Stryker vehicles.

SBCT 3—the 172d Infantry Brigade at Fort Wainwright, Alaska—and SBCT 4—the 2d Armored Cavalry Regiment at Fort Polk, Louisiana—will be fielded over the next few years.

The first SBCT enhancement will improve satellite communications by offering high-speed compatibility and interoperability with the joint forces. Future Stryker brigades also will have increased command and control, communications, logistics, target acquisition, and intelligence.

Soldiers in future SBCTs will have lighter howitzers, organic aviation elements, and better sensor capabilities. Initially, Stryker brigades 1 through 4 will have 12 M198 155-millimeter howitzers each. SBCTs 5 and 6 will be enhanced with 18 new, light-weight 155-millimeter howitzers each.

The current Stryker brigades have direct aviation support. Beginning with SBCT 5, aviation elements will be organic. SBCT 5 will be equipped with RAH–66 Comanche helicopters, and the Army will use the aviation lessons learned from that experience to equip SBCT 6 and to retrofit SBCTs 1 through 4. Until then, SBCTs 2 through 4 will have aviation packages similar to that of the first Stryker brigade, which includes OH–58 Kiowa and UH–60 Black Hawk helicopters that provide direct support.

Sensor capability enhancements will include adding 10-meter masts to Stryker vehicles so soldiers can use the sensor system from concealed positions up to 10 kilometers away.

AUSA PANEL ADDRESSES NEED TO BETTER CONNECT LOGISTICIANS

"Connect Logisticians," which is one of the focus areas of Army Logistics Transformation, was the subject of a panel chaired by Major General Mitchell H. Stevenson, the Army Materiel Command's Deputy Chief of Staff for Logistics and Operations, at the Association of the U.S. Army's (AUSA's) 2004 Logistics Symposium. The symposium was held in Richmond, Virginia, 6 to 8 April. Other panelists were Lieutenant General Otto J. Guenther, USA (Ret.), Vice President and General Manager of Tactical Systems Division at Northrop Grumman Mission Systems; Major General Conrad W. Ponder, Chief Integration Officer (CIO), Office of the Army CIO/G-6; Ms. Modell Plummer, Director of Sustainment, Office of the Deputy Chief of Staff, G-4; and Colonel John J. Erb, USA (Ret.), Deputy Director of Strategic Logistics, J-4.

In spite of the great strides that have been made in Army logistics since Desert Storm, Stevenson said that Army logisticians still cannot see requirements on the battlefield and their customers cannot adequately see supplies coming their way. Two systems that show great promise in connecting the logistician are the small satellite terminals now in use in Southwest Asia, and the Movement Tracking System (MTS), which provides a wireless, mobile, satellite-based two-way text messaging system designed to provide command and control over transportation assets supporting theater distribution operations. The MTS can identify current vehicle locations and send text messages to and from MTS-equipped vehicles.

According to General Guenther, the Army rightly views logistics as a holistic enterprise rather than as a series of stovepipe systems. This is essential to achieving near-real-time, anticipatory logistics support for warfighters. However, it cannot be accomplished without adequate communications bandwidth, a capability that can only be realized if both military and commercial means are used. Private industry has the ability today to provide the Army with an interim communications network that could support future networks and future force structure. This would support the Chief of Staff's imperative to bring future force capabilities to current forces. Further, it would connect Army logisticians by providing end-to-end logistics situational awareness and understanding. That, stated Guenther, should be enhanced by providing logisticians with a similar unit tracking system that combat units

possess with Force XXI Battle Command Brigade and Below (FBCB2), a system he called Logistics Blue Force Tracking.

Guenther pointed out that today's logistics business systems provide information that is as timely and relevant as the information that is necessary for the command and control (C2) systems. Therefore, the information architecture must support data flows that inform both the business systems from the tactical level to the national level as well as the C2 systems from the warfighter up to the joint C2 at the theater combatant commander or joint task force commander level. This is critical to providing accurate sustainability assessments as well as allowing for informed decisions on distribution priorities. The Army's adoption of commercial Enterprise Resource Planning (ERP) solutions is a major departure from the former business practices and a significant step toward building the required information architecture. However, to be successful the Army must provide visionary subject-matter experts to support the process design with expedited decisionmaking and governance by senior leaders.

As noted by Ms. Plummer, gaps in information transfer during Operation Iraqi Freedom (OIF) occurred because initially, satellite communications were not available at logistics nodes and continental United States-based units that deployed to OIF were not adequately equipped and trained in the use of in-transit visibility tools, such as radio frequency identification (RFID) read-write capability, which made it difficult to link supplies with the units needing them. As a result, soldiers lacked confidence that what they ordered would get through to them.

Major General Ponder stressed the need for connectivity from factory to foxhole. Ponder also noted the successful use of very small aperture terminals (VSATs) and the wireless Combat Service Support Automated Information System Interface (CAISI) to fulfill this need. VSATs allow voice, data, and video communication at any location, including remote sites. The CAISI can function in garrison to extend the local area network to units without connectivity and to tactical environments without changing network addresses. With this type of "plug-and-play" communication system, deployed units can use the same systems they use in garrison to set up and begin operations quickly.

Colonel Erb pointed out that the Army shares the challenge of providing connectivity to field logisticians with the Marine Corps and ground force coalition partners. He stated that billions of dollars are being spent by the Department of Defense to

replace antiquated legacy transaction and information systems; therefore, dedicated communication systems are required to enable these process engineering efforts to achieve their full potential.

The Warfighter Information Network-Tactical (WIN-T), which is scheduled for fielding in the 2008 timeframe, will exploit the Global Information Grid to connect all users in the theater to the maneuver battalion, to joint and multinational elements, and to the Defense Information System Network. The WIN-T network will provide command, control, communications, computers, intelligence, surveillance, and reconnaissance support capabilities that are mobile, secure, survivable, seamless, and capable of supporting multimedia tactical information systems within the warfighters' battlespace.

HSV DECK LANDINGS COULD INCREASE FUTURE TRANSPORTATION CAPABILITIES

Two Army UH-60 Black Hawk helicopters landed on board the high-speed vessel (HSV) *USAV Joint Venture XI* on 25 March, marking the first time in more than 30 years that an Army helicopter has landed on an Army ship. After offloading passengers onto the deck of the ship, the pilots practiced deck landings required for deck certification.

The Black Hawks are assigned to Company B, 1st Battalion, 52d Aviation Regiment, 17th Aviation Brigade, in Yongsan, South Korea. The *Joint Venture* is stationed in Hawaii under the command of U.S. Army Pacific but was in the Yellow Sea off the coast of Korea to support a reception, staging, onward movement, and integration exercise being conducted on the Korean peninsula.

This landing was historically significant, but future deck landings aboard Army vessels are uncertain because the Army currently has no

watercraft in its permanent inventory capable of supporting flight operations. However, including the *Joint Venture*, or other vessels like it, in the permanent Army inventory could provide the Army with the capability to move troops and equipment quickly into areas previously thought inaccessible.

SDDC MOVES CARIBBEAN PORT TO JACKSONVILLE, FLORIDA

In May, the 832d Transportation Battalion completed its relocation from Fort Buchanan, Puerto Rico, to Jacksonville, Florida. The move followed the move of U.S. Army South from Puerto Rico to Fort Sam Houston, Texas. The Port of Jacksonville is one of the Surface Deployment and Distribution Command's (SDDC's) 18 strategic ports in the continental United States.

The 832d is now operating on the 800-acre Blount Island Marine Terminal at Jacksonville, which has a mile of continuous berthing and is one of the largest terminals on the east coast. The terminal has at least 75 acres of secure cargo area available at any one time. The island has an

A UH-60 Black Hawk helicopter makes a historic landing on the USAV Joint Venture. (Photo courtesy of Incat Australia.)



extensive rail network and large open areas where helicopters can land. A bridge connecting the island to the main port controls access to the terminal.

The new location will boost the battalion's effectiveness and provide SDDC ". . . greater synergy for our continental United States terminals to [provide] support to other warfighters deploying elsewhere around the world—in addition to U.S. Southern Command," said Colonel James Chen. Chen is the commander of the 597th Transportation Group in Sunny Point, North Carolina, of which the 832d is a part.

SDDC will maintain a presence in Puerto Rico. A two-member office in San Juan, under the command of the 832d, will monitor existing sustainment contracts that support other Government agencies throughout the Caribbean.

SOLDIERS HELP WITH WEAPONS DESTRUCTION IN BOSNIA-HERZEGOVINA

Soldiers of the Stabilization Force (SFOR) Multinational Brigade (North) helped deliver approximately 1,000 weapons and 3,000 rifle magazines to the Zenica Steel Factory in Bosnia-

Herzegovina for destruction earlier this year. In 2003, more than 11,000 weapons were destroyed at the same site.

The weapons and munitions that had been used during the war in Bosnia-Herzegovina from 1992 to 1995 were collected in the SFOR's Operation Harvest, during which citizens were encouraged to hand over their illegally held weapons, ammunition, and explosive devices with full amnesty. The collected weapons and munitions were transported to the steel factory, where they were loaded into long, bathtub-shaped buckets and carried to the furnace area by crane. Soldiers transferred the weapons to smaller cast-iron bins, which were dumped into the furnace by machine. In a 7-hour process, the weapons were melted down at a temperature of 2,000 degrees Fahrenheit. The molten steel was recycled into raw steel for construction use.

CAS3 MERGED WITH OFFICER ADVANCED COURSES

The last class of the 5-week Combined Arms and Services Staff School (CAS3) at Fort Leavenworth, Kansas, graduated in May, and the responsibility for staff officer skills training was transferred to the branch proponent schools. The branch schools will expand their Officer Advanced Courses (OACs) by 1 week to include a combined arms exercise to provide captains with much of the combined-arms experience that was a critical part of CAS3.

The merger of the course curriculums resulted from approval by the Secretary of the Army of the Army's plan to merge CAS3 and OACs to eliminate redundant instruction and minimize captains' time away from operational assignments and their families.

In the past, instruction in areas such as problem-solving and military decisionmaking has been a part of the curriculum of both the OACs and CAS3. Decisionmaking also

Stabilization Force members load weapons slated for meltdown into a bin at the Zenica Steel Factory.



is taught later in an officer's career at the Army Command and General Staff College. "Some repetition is good," said Colonel David S. Thompson, CAS3 director at Fort Leavenworth. "What we're trying to do is eliminate any redundancy in instruction."

The merger, planned as part of the transformation of the Officer Education System, was originally scheduled for fiscal year 2005 but was moved up for operational reasons. "With the Army at war, captains need to get back to their units," Thompson said. The course merger will get them back to units almost 4 weeks earlier.

Fort Leavenworth has been conducting 7 CAS3 classes per year with about 450 students each. Active-duty captains have been attending CAS3 at Leavenworth immediately after finishing the OAC at their branch schools. In recent years, most captains have gone to their advanced course as a permanent change of station move. Now they will go in a temporary duty status and return to their units.

Army National Guard and Army Reserve captains may continue to take CAS3 at Army Reserve Forces Schools at least until the current courses finish at the end of fiscal year 2004.

'AKO LITE' AVAILABLE

Army Knowledge Online (AKO) is now available in a lighter version that permits quicker download

ing. The new version of AKO, called AKO Lite, is AKO's response to concerns expressed by deployed soldiers that AKO took too long to access and use.

To reduce the time needed to download AKO, the graphics used on the AKO homepage have been eliminated. The AKO Lite homepage does not have pictures, links to Army senior leaders, or Army and AKO logos, nor does it have Quick Links, My Links, What's New at AKO, or My KCC sections. These features are still available on the complete AKO site, however. On AKO Lite, soldiers still have access to their email, instant messaging, and knowledge collaboration centers.

AKO Lite is part of an ongoing effort to make AKO useful and relevant. Other initiatives that will be implemented in the near future include—

- Upgrading the server to deliver AKO and AKO Lite twice as fast as the current software.
- Making the viewable area of the announcements section smaller by introducing a scrolling text box.
- Updating all AKO pages with consistent colors and logos.
- Creating a new portal that allows AKO users to create their own homepages that can be viewed by other AKO users.
- AKO Lite can be accessed through the regular AKO sign-in page at www.us.army.mil by using a link on the left side of the page. The site responds to the same user name and password as the regular AKO service.

Army Logistician (ISSN 0004-2528) is a bimonthly professional bulletin published by the Army Logistics Management College, 2401 Quarters Road, Fort Lee, Virginia 23801-1705. Periodicals postage is paid at Petersburg, VA 23804-9998, and at additional mailing offices.

Mission: *Army Logistician* is the Department of the Army's official professional bulletin on logistics. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.

Disclaimer: Articles express opinions of authors, not the Department of Defense or any of its agencies, and do not change or supersede official Army publications. The masculine pronoun may refer to either gender.

Reprints: Articles may be reprinted with credit to *Army Logistician* and the author(s), except when copyright is indicated.

Distribution: Units may obtain copies through the initial distribution system (DA Form 12 series). Private domestic subscriptions are available at \$21.00 per year by writing to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954, or by visiting <http://bookstore.gpo.gov> on the Web. For credit card orders, call (866) 512-1800. Subscribers should submit address changes directly to *Army Logistician* (see address below). *Army Logistician* also is available on the World Wide Web at <http://www.almc.army.mil/alog>.

Postmaster: Send address changes to: EDITOR ARMY LOGISTICIAN/ALMC/2401 QUARTERS RD/FT LEE VA 23801-1705.